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SEPTEMBER 1959

THE MAGAZINE OF TASTE AND SCENT



Urocanic Acid ... Page 26 • Foreign Trade Marks ... Page 34



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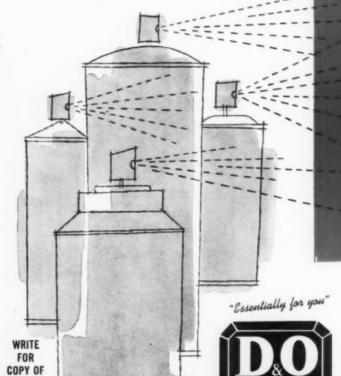
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VOL. 73, NO. 9

SEPTEMBER 1959

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### OFFICES



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American Gas Companies.

### Readers, Advertisers & Truth

It has occurred to me that many of our readers are unfamiliar with one particular dimension of the publishing industry and I am taking this opportunity to write about the (197): what it is and what it does for the publishing industry.

Audit Bureau of Circulation, (III), is a voluntary, cooperative and

nonprofit association, founded in 1914 by publishers, advertisers and advertising agencies to ensure dependable circulation statements. The bureau sets standards for the definition and measurement of paid circulation, verifies adherence to those standards by its publisher members, and disseminates circulation data.

We publishers give the ABB the right of access to all books and records so that verification can be made and publication advertising space bought on the basis of known values; for example, the number of paid subscribers.

The reader's decision to subscribe or not to subscribe records his judgment of the editorial content of that publication; the ABC-audited circulation reports make the sum of these judgments known to all concerned.

For 23 years American Perfumer & Aromatics has enjoyed authenticated membership in the (181). And for that period of time we have had the reader's interest foremost in our consideration.

It may be properly inferred that readership interest builds paid circulation. The reports are an effective vardstick with which to measure editorial vitality, the end product of which is a better publication. But this yardstick is an outgrowth of the wisdom of the .idea

which manifests itself in several ways, one of the most obvious being use of the insignia-a sign of qualitative cir-(ABD)

culation and market measurement. It must also mean, if I have made myself clear up to this point, that there obviously exists a governing body with authority (1) to grant the right to the use of the insignia, (2) to practice

and to monitor its integrity and all that it stand for, and (3) if given just cause, to withdraw the privileged use of this great denominator of paid circulation.

Remember, is your best assurance that this publication is edited first for your interest and is the best assurance to an advertiser that this publication is paid for and wanted by its subscribers.

amen Hollowy b

James H. Moore, Jr. Publisher

ES



itself to the Fifth Sense. In the development of Essential Oils, Floral Absolutes, Chemical Isolates, Synthetic Chemicals, and all those creations and specialties which combine industrial aromatics with natural products and produce fragrance, the House of Chiris has a cherished history. Today Chiris maintains laboratories headed by experienced chemists who have available to them not only the accumulated knowledge of generations of Chiris perfumers and chemists, but also the research facilities of five modern laboratories located in Grasse and Paris, London, Sao Paulo (Brazil), and New York City. Whether Essential Oils, Isolates, or combinations thereof, are used as fragrance constituents by the perfumery, soap, cosmetics or allied industries, we are happy to be consulted.

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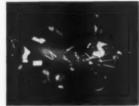
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# MINUTE NEWS . .

Firmenich Buys Ciba Plant Firmenich, announces the company, has concluded negotiations and purchase of the Ciba Manufacturing Plant and facilities located on a 113 acre site at Kinberton, Pennsylvania. This plant, comprising 65,000 square feet, was constructed and modernized in 1954. Firmenich has not formally announced future plans, but it can be presumed that they will initiate production of their aromatic chemical specialties in the U.S.

Vogue Survey Published An extraordinary 96% of the readers of Vogue Magazine wear perfume, according to results of a survey just announced by the publication. Of these, 78% wear it both daytime and evening. Vogue's Market Research Department questioned a representative sampling of 10,000 subscribers and newsstand purchasers to get a comprehensive picture of the beauty buying habits of these women. The survey also revealed that 15% of the perfume wearers started using their favourite scent after reading about it in a magazine and less than 1% bought it as a result of radio and television advertising. Over half first received it as a gift. Cologne and toilet water did not come off as well as perfume in the Vogue survey. Of the readers queried 87% wear these fragrances. Of this group, 50% wear them in the daytime, 46% both daytime and evening, and 4% in the evening only.

Lanolin Plus Sales Up Lanolin Plus reports sales and other income of \$12,297,013 for the fiscal year ended June 30, the highest in its 13-year history and substantially above the \$7,628,638 reported last year. Net income after amortization and taxes was \$479,388, or 41 cents per share, against a loss of \$900,377 for the previous fiscal year. Profits before the annual amortization charge of \$957,967, scheduled to end next year, involving the purchase of patents, trademarks, etc., amounted to \$1,363,765, or \$1.18 a share.

Food Additives Amendment Considered The Food Additives Amendment of 1958 represents gratifying recognition by the government of the important role of additives in the country's food supply, but the chemical industry faces many serious problems under the new law, Kenneth E. Mulford, chairman of the Food Additives Committee of the Manufacturing Chemists' Association, said in a speech before the Division of Food, Drug and Cosmetic Law of the American Bar Association in Miami Beach on August 24. Mr. Mulford, who is assistant to the executive vice president of the Atlas Powder Company, Wilmington, Del., said that the "complex problems facing us today call for a high degree of industrial statesmanship on the part of all of us who are involved in the operations of the new law." He said that officials of the Food and Drug Administration "from Commissioner Larrick on down have extended excellent cooperation to industry" in exploring various problems that have arisen. Mr. Mulford said, however, that industry "must bear its full share of responsibility for seeking solutions."

New Seventeen Survey Out 99.7% of American teen-age girls wear lipstick, 47.7% have experimented with new white lipsticks, 70.3% use face powder, 77.3% use talcum or dusting powder and 83.7% wear perfume, according to a report recently published by Seventeen Magazine. Entitled "The Beauty Habits and Product Preferences of Young Women Under 20, Number 11, Part II," this report is the fourth in a continuing semi-annual series of surveys conducted by Seventeen to determine teen trends in cosmetic and toiletries purchases. The current report, which concerns cosmetics, is based on the questionnaires of a cross-section of 1,310 Seventeen subscribers who represent a range of economic background and geographic location. It is available on request from Aaron Cohen, Research Director, Seventeen Magazine, 488 Madison Avenue, New York 22, N.Y.

FEMA Co-Sponsors Research Program The Flavoring Extract Manufacturers' Association and the Vanilla Bean Association of America will jointly sponsor a Vanilla Agronomy Research Program to be conducted at the U.S.D.A. Federal Experiment Station in Mayaguez, Puerto Rico. The cooperative agreement with the U.S. Department of Agriculture in Washington has just been signed. Fundamental research work will begin immediately on the nutritional needs of the Vanilla plant, the prevention of rootrot disease, and other phases of its agronomy. It is hoped that these fundamental studies will ultimately lead to an increase in the production of Vanilla Beans.

Atomizer Sales Up Mid-year statistics, just disclosed by H. P. DeVilbiss, president of the DeVilbiss Company, show perfume atomizer sales up 300% in the first half of 1959 as against the first six months of 1958 and up 500% over a like period in 1956. Actual sales figures weren't released but the trade estimates that 1958 sales by all manufacturers totalled in the neighborhood of 1,500,000 units. If the trend holds—and there are no signs yet of a decline, according to Mr. DeVilbiss—the industry will go well over 4,000,000 units this year. In discussing reasons behind the sales spurt, Mr. DeVilbiss points out that perfume atomizers have a history of sales cycles. The present upswing started in mid-1957 and that year ended with a 30% increase over 1956.

Jeenie Halts Genie A comparatively small Jeenie from Mountainview, California chopped down to size the giant Colgate-Palmolive Genie by winning a decision from Federal Judge William Ritter that the eastern company had been infringing on the trademark of Jay S. Conley Co., reports Advertising Age. Judge Ritter enjoined Colgate-Palmolive from using the Genie trademark anywhere in the 14 western states considered by Conley to be its marketing area for Jeenie cleanser. Conley also had asked for an unspecified amount of money as damages, but Judge Ritter did not deal with damages. His decision may be appealed by Colgate to the court of appeals for the 9th federal district, which sits at San Francisco. Judge Ritter's decision was expected to halt at least temporarily a marketing program in which Colgate reportedly already has spent \$1,800,000 in advertising and has given away some 2,800,000 free samples of Genie.

Industry People Jill Jessee, of Jill Jessee, Inc. and Elsie Thorsten, Personnel Manager of Elizabeth Arden, Inc., have been elected directors of the Cosmetic Industry Service Association. . . . Adele Berger has been appointed a Max Factor product manager. Mrs. Berger will be in charge of the company's treatment line merchandise. . . Allen C. Wilcox Jr. has been made general manager of the newly-created Hawaii Packaging Division of Fibreboard Paper Products. His duties begin October 1. . . . Fay Mowery Moore, designer and artist, has become design consultant for Aerosol Techniques, Inc. The company believes that this is the first time such a specialist has been associated with an aerosol packaging company. . . . Bryant Aguiar, Robert D. Cleland, and Frank P. Macfarlane recently joined the development department, South Charleston, W. Va., of Union Carbide Chemicals Company, Division of Union Carbide Corporation.





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Lovender Bouquet	DH-150

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	Souquet	DH-147

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Oriental Bouquet	DH-54
Rose	DH-55
Orange Blassom	DH-59
Lovender	DH-66
Floral Bouquet	DH-76
Lemon	DH-94
Lily Muguet	DH-102
Lavender	DH-119
Curnation	DH-131
Cologne	DH-142
Floral Bauquet	DH-147

# MOTH & INSECT SPRAYS

uth & macul arnara		
Siberian Pine	DH-29	
Cedar Balsam Pine	DH-33	
Yiolet	DH-42	
Spicy Mint	DH-50	
New Mown Hay	DH-69	
Spice	DH-74	
Para Odor	DH-122	
Josmin Bouquet	DH-123	
Cedar	DH-127	
Cedar Wood	DH-132	
English Lavender	DH-133	
Lavender Bouquet	DH-150	

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Oriental	DH-103
Cologne Bouquet	DH-117
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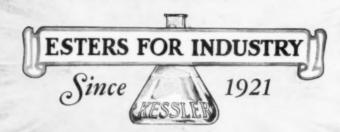
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# DESIDERATA

Maison G. deNavarre, M.S., F.A.I.C.



#### **Cold Wave Fixatives**

An improvement in cold wave fixatives is found in Austrian Patent No. 193,079 (1957) over peroxide and the oxidizing halogen acids such as bromate which are too slow acting.

A catalyst, such as a water soluble metal salt of the fourth group in the periodic system, is used in bromate oxidizing solutions to speed up the fixative action. An ordinary 4 per cent bromate solution takes up to 18 minutes to oxidize the thioglycolate but when the catalyst is added, this is reduced to one minute.

An example of the invention gives the following composition: 5 per cent sodium bromate, scdium lauryl sulfate, 0.3 per cent iron ammonium citrate and 91.7 per cent water. Such a solution can be made faintly acid without the liberation of bromine.

Another Austrian patent covers the use of urea along with bromates (Na, Ca or K) in a ratio 1.5 to 1. This reduces the hazard of explosion in the handling of the oxidizing agent. A powdered composition covered by example contains: Duponol 3per cent, ammonium chloride 4 per cent, to which is added  $2^{1/2}$  moles urea and 1 mole of sodium bromate.

#### **Cosmetics And Absorption**

The Society of Cosmetic Chemists Seminar at the French Institute on September 23rd and 24th is devoted entirely to percutaneous absorption. On the first morning the theme is "Methods of Measuring Percutaneous Absorption," that afternoon the theme is "Factors Which Influence Percutaneous Absorption." Then the 24th the morning session, "Percutaneous Absorption of Cosmetic Chemicals Resulting in Favorable Effects." That afternoon, subjects discussed will cover percutaneous absorption of cosmetic chemicals resulting in unfavorable effects.

Seminar Chairman, Everett Saul is to be congratulated on having speakers and discussors of the caliber of Suskind, Rostenberg, Blank, Higuchi, Goldzieher and Malkinson to name a few.

Attendance is limited to a given number. So, first come, first served, S. C. C. members getting preference.

#### **Synthetic Pearl**

A number of new materials, having the iridescence of pearl crystals (guamine) are appearing on the market. They may or may not be safe for cosmetic use. Investigate before you adopt the material. Some are lead compounds.

### **Placenta Units**

The literature is starting to show that placenta extracts can be standardized on the basis of phosphotase units. If processing kills the enzyme, it is claimed the extract is probably worthless too. Placenta promises to be a pretty important material for cosmetics, assuming the phosphotase is preserved in the finished product.

## **Skin Depigmentation**

It is pretty well known that certain derivatives of hydroquinone can cause leucoderma, a loss of skin pigment. Schwartz, who was the first to publish on this (or one of the first), called attention to possible sensitization from the use of benzyl hydroquinone as a skin bleach.

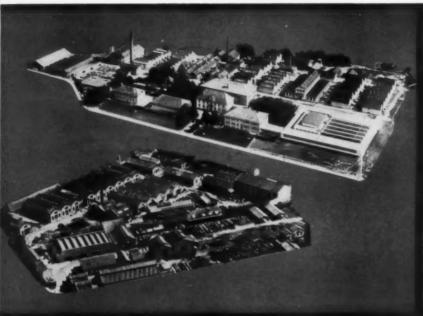
Schneider, one of Germany's top dermatologists, used a diphenyl and an arylurea derivative with no irritation following skin application. If hydrolysis takes place, in the skin, of the hydroquinone ether, it is understandable that it may be an irritating compound for benzyl alcohol is not entirely without skin sensitizing action. On the other hand, if it is the hydroquinone that irritates, then one wonders why Schneider's derivatives were free of this phenomenon.

In any event the quinone derivatives are apparently not effective on patch pigmentation of skin, a fairly prevalent cosmetic problem among aging people.

#### Notes

D-glucamine and glycine derivatives of nitro and halogenated benzenes have antibiotic properties . . . Polyethylene, hitherto impossible to protect against ultraviolet light (except with carbon black) can now be protected with 2,2'dihydroxy-2octoxybenzophenone. The presence of the octyl group renders the sunscreen soluble in polyethylene. It is effective in the range 3000-3750 Angstroms . . . The August D&O News brings a shock to some in that raw beef steak applied to a black eye doesn't do any good. . . . Seems like methionine is more useful in the body that has been thought. As adenosylmethionine it enters into a number of essential body reactions according to a note in the July U. S. I. Chemical News. . . If you (Continued on page 23)

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have continual bouts with canker sores, they may be due to an allergy to acetic and citric acids according to Tuft and Girsh. . . . It was interesting to read Los Angeles District FDA Chief, Gordon Wood comment on nutrition and vitamin health fads. . . . The only thing I don't agree with is that you can tell people what is good for them, but if they don't like it, they won't eat it. Just because tomatoes are said to be good for you-and I am not certain they are-I won't eat them because they nauseate me as do many food products from the sea. So I get some vitamin and other supplements via a tablet. There are lots of foods nutritionally perfect that taste like hell and look worse. Ask any soldier who has had scrambled eggs during wartime. You may have to eat this stuff if you are hungry and nothing else to take its place, but if there is an alternative, most people will go for it. . . . All of which brings to mind the fact that the root of swamp cattails is very nutritious, almost as good as potato or wheat flour and better than corn or rice

# Interested in cosmetic material trade names?

The "International Encyclopedia of Cosmetic Material Trade Names," by Maison G. De-Navarre, is the one comprehensive source book of the industry.

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#### 1348 ANTIBACTERIAL CLOTH

Q. In a recent issue you mentioned that an antibacterial cloth has been devised recently. Would you please let us have more information on this product? C. T., N. Y.

A. This active ingredient is made by the lons Exchange and Chemical Corp., and called "Eversan." The organic zinc ingredient makes textile fiber molecules permanently antibacterial.

#### 1349 DIETHYL SEBACATE

Q. We would appreciate the manufacturers' addresses of the following products: Diethyl sebacate (ethyl sebacate); liquid monoglyceride; liquid vegetable oil esters. A. S., Puerto Rico

# Industrial Solvents Co, Devonshire House, Mayfair Place, Piccadilly, London W.1, England. Perfumery grades are available from any of the well known perfumery suppliers. As to the source for liquid monoglyceride and liquid vegetable oil esters, this leaves us completely in the dark. Liquid monoglyceride is a meaningless term as is liquid vegetable oil esters. Can you tell us more specifically what you have in mind, and we shall try to help you out.

A. Diethyl sebacate is manufactured in a very fine solvent grade by the British

#### 1350 ATTAR OF ROSE

Q. I wish information concerning the manufacture and use of the essential oil Attar of Rose for some research I am conducting. Could you refer me to any particular articles in your magazine that deal with this particular oil? B. N. H., Mich.

A. We suggest you consult Guenther's THE ESSENTIAL OILS which has the latest, up-to-date material. You can also check CHEMICAL ABSTRACTS, especially the Decennial Index. Both these references should be in your local main public library.

### 1351 LIPSTICK

Q. We would like to have some information about lipsticks. I. Is there a breakdown of users according to age groups?

2. How many lipsticks are sold annually?

3. What are the popular shades arranged in order if possible? 4. Is there any additional statistical information that could be helpful to an organization contemplating entering this field? Do you publish a cosmetic formulary relating to lipstick formulations? If not, can you refer us to a source of lipstick formulas?

B. I. C., Gā.

# A. There is no known record of how many lipsticks are sold annually. We have heard estimates of 200 to 500 million but that is as close a guess as anyone has made. We believe one of the sales surveys made by Redbook Magazine, 230 Park Ave., New York City, offer an age group breakdown. There is no breakdown of shades for the simple reason that shades change so often. As for further statistical information regarding this field, you might want to check the Fawcett Survey or the Good Housekeeping Survey, both made by the magazines of the same names. We at the AMERICAN PERFUMER do not publish a cosmetic formulatory, but there are two very fine books available now that discuss formulation. One is by Sagarin entitled COSMETICS: SCIENCE AND TECHNOLOGY which is priced at \$25.00 and the other is Harry's book on MODERN COSMETICOLOGY a British publication. Both books are available through the AMERICAN PERFUMER. Your public library may also have some of the additional books including one by deNavarre entitled the CHEMISTRY AND MANUFACTURE OF COSMETICS although the only available edition is dated 1941.

#### 1352 SHAMPOO BASE

Q. Please advise where we may obtain a shampoo base. P. K., N. J.

A.. We are not certain what you require. However, in the event that you may want a soap shampoo, we suggest that you contact the Colgate-Palmolive Company, 105 Hudson St., Jersey City, N. J., who have several types of soap concentrates of high quality which you can buy in drums and dilute to your own concentration. Should you require a detergent type shampoo base, we suggest you contact the Davies-Young Soap Co., Dayton 1, Ohio. They also have a fine coconut oil soap base.

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# Urocanic Acid, A Physiological Sunscreen

I. M. HAIS, M.D.\*, AND A. ZENISEK, PH.D.\*\*

The initial appearance of urocanic acid (UA) on the chemical stage was dramatic, or to be more exact, tragicomical: the only dog in whose urine this substance had been demonstrated for the first time (Jaffé 1874)1 ran away and was never seen again, thus carrying away with it the source from which further material for a more detailed study could have been obtained. On the tortuous path of scientific endeavor this substance brought with it further interesting and even dramatic surprises: Polemics concerning the pathways of its degradation, the surprisingly high concentration in sweat where it was, paradoxically enough, discovered by paper chromatography because of its absence in electrolytically desalted samples, the unsolved problem of the ultimate source of the UA present in sweat and the epidermis, its physiological role as a natural sun-screen and its applicability in cosmetic tanning preparations, the attention which seems to have been paid to it for years in cancer research as one of the criteria by which the normal epidermis may be distinguished from malignant growths, the discovery of its pharmacologically active ester derivative in the snail Murex trunculus and the introduction of this ester in surgical practice in the indication of a curariform

The isolation of UA from the urine of one of the pnitrotoluene treated dogs permitted Jaffé¹ to characterize the substance correctly by its elementary composition (C<sub>6</sub>H<sub>6</sub>O<sub>2</sub>N<sub>2</sub>. 2H<sub>2</sub>O) and amphoteric nature, but its chemical structure was not elucidated until Hunter² demonstrated that the UA he found in the pancreatic digests in milk protein was identical with imidazol-4(5)-acrylic acid prepared by Barger and Ewins³ during the structural investigations of ergothioneine discovered in ergot.

Its chemical similarity to histidine from which it can be derived by simple deamination led to the plausible assumption that it is a degradation product of histidine in living cells. This was substantiated by the demonstration of the conversion of histidine to UA by bacteria (Raistrick, 1917) <sup>4</sup> and by the occurrence of UA in dog urine after the administration of histidine (Kotake, 1922) <sup>5</sup>. It may now be considered as an established fact that UA can be formed enzymatically from histidine in mammalian liver, but certain discrepancies still remain as to the physiological role of this route of histidine degradation and the pathways of the further breakdown of UA.

It is not possible to review here the abundant and partly contradictory literature on these problems. By way of illustration we insert only a schematic representation (fig. 1) of the metabolic pathways of histidine and UA (cf. Tabor)<sup>6</sup>. In quite general terms it can be said that UA and glutamic acid are actually produced from histidine and that after the administration of C<sup>14</sup>-labelled histidine the fraction of radioactivity incorporated in these substances as found in urine is very low compared with that in imidazoleacetic acid, histidine, and methyl-

histidine<sup>7</sup>. Although the UA pathway would thus appear to be quantitatively a minor one in animals, its physiological role may be very important, as it generates a onecarbon fragment which can be utilized through the folic acid system<sup>8</sup> in the elaboration of purines and other important body constituents. This imidazole-ring carbon-2 is marked by an asterisk in fig. 1.

An oncological aspect may be of interest in this connection. It has been found by Goryukhina<sup>9</sup> that the activity of histidine-deaminating and UA-splitting liver enzymes is increased 4-5 times in rabbits with a Brown-Pearce epithelial tumor. Histidine metabolism is deviated in this direction to such a degree that it becomes deficient for the elaboration of proteins.

Another unexpected encounter with UA was reported when Erspamer<sup>10</sup> following the lead of Vincent and Jullien<sup>11</sup> identified with urocanylcholine the cholinergic principle of the hypobronchial glands of the sea snail, Murex trunculus, called murexine. Among the pharmacologic properties of this substance the curarizing (neuromuscular junction paralyzing) effect has assumed practical significance in anesthesia<sup>12</sup>.

A different aspect is presented by the study of sweat constituents performed by the present authors 13. Among other substances which give a color reaction with diazotized sulfanilic acid there appeared on paper chromatograms of electrolytically desalted sweat a cherry-red reacting spot. This substance showed amphoteric behavior in ionophoretic experiments. As an aliphatic amino group was unlikely owing to the ninhydrin-negativity of the substance and an aromatically bound primary amino group owing to its resistance to diazotizing agents, it became plausible that the weakly basic group was contained in a heterocyclic structure, most probably an imidazole ring. Comparison with authentic samples (fig. 2) showed that the cherry-red reacting substance in electrolytically resalted sweat corresponded to imidazolepropionic acid; it was absent from undesalted sweat where imidazoleacrylic acid (UA) was found instead. Further independent evidence for the identity of UA in sweat was given by the characteristic shift of its high UV absorption maximum and polarographic behaviour15, both properties being also applicable for analytical pur-

The finding of UA in human perspiration gave an explanation for the earlier observations of ultra-violet spectrographers that contamination of cover glasses or cells by fingerprints led to a striking absorption <sup>16</sup>. UA seems to be mainly responsible for this unpleasant phenomenon.

More recently, UA was found in the epidermis of guinea pigs which have no sweat glands. When reporting this finding, Tabachnik<sup>17</sup> drew attention to the fact that a similar UV-absorbing substance has already been demonstrated in the normal epidermis of mice and men<sup>15</sup>. This substance was absent in spinocellular carcinomas which are derived from the epidermis.

The concentration of UA in sweat is greatly variable

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\*\*Institute of Sport Medicine, Caroline University, Prague 2.

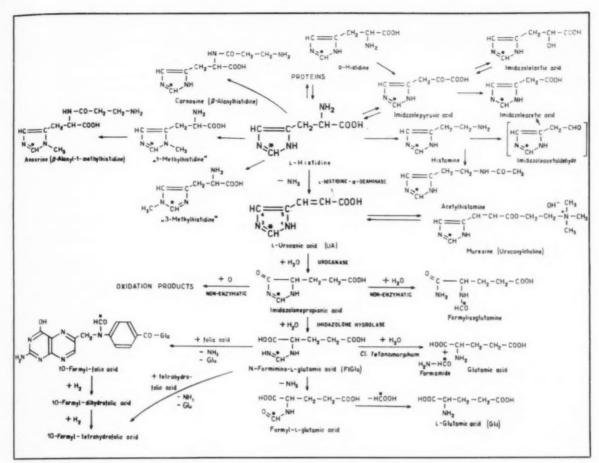


Fig. 1. Schematic presentation of the metabolic interrelationships of histidine and urocanic acid.

both individually and according to the physiological conditions. The average value is about  $10~\text{mg}\,\%^{13}$ . According to Spier<sup>19</sup> the concentration of UA in the outer horny layers of the human epidermis is about 0.6% i.e. 3% of the water-soluble solids.

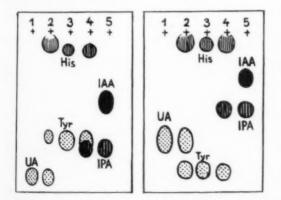


Fig. 2. Identification of urocanic acid in human sweat<sup>14</sup>. On left: n-butanolocetic acid-water (4:1:5) mixture, on right: n-butanol soturated with IN HCI. Runs: 2—undesatted sweat, 4—electrolytically desatted sweat, 1,3,5—standards: urocanic oxid (UA), histidine (His), tyrasine (Tyr), imidazoleacetic acid (IAA), imidazolepropianic acid (IPA). Pauly reaction: Black area—deep purple, shaded red, dotted—orangebrown.

The fascinating similarity between the UV-absorbing properties of UA and those of the sun-screens commonly

used in cosmetics, led to the suggestion<sup>24</sup> that UA represents a physiological sun-screen. It has no noteworthy absorption in the 320-400 mµ UV range which stimulates pigmentation without previous erythema. Although UA exhibits in acidic and neutral solutions an absorption maximum at shorter wave-lengths, its absorption is satisfactory even between 300-305 mµ which is practically the most important sunburn region (fig. 3)  $^{20}$ . It has been shown by calculation that sweat which contains 4 mg % UA absorbs in a 1 mm thick layer one half of the radiation intensity at 300 mµ. Already in 1938 Crew and Whittle obtained similar figures for the UV-protecting effect of sweat without being aware of the presence of UA.

Another calculation may be based on the UA content of the horny layer for which Spier preports the figure 0.6%. Assuming the thickness of this layer to be 15  $\mu$  and pH 7, it can be shown that the UA acid of the horny layer absorbs about 72% of the incident radiation intensity of 300 m $\mu$ . Tentatively, it may be suggested that the minimum of erythema-producing activity of artificial UV radiation near 270 m $\mu$  is attributable to the absorption maximum of neutral UA solutions at precisely the same wave lengths.

It is a well-known fact that sunburn occurs more easily after swimming; this may be explained by the elution of UA from the skin surface<sup>24</sup>. Spier and Pascher<sup>19</sup> draw attention to the possibility that the increase of resistance to erythema-producing radiation reported after alkaliza-

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tion of the skin surface might be connected with the more advantageous position of the absorption maximum of UA in alkaline solutions of (cf. the increase of resistance after an alkaligenic diet, Bering) 25.

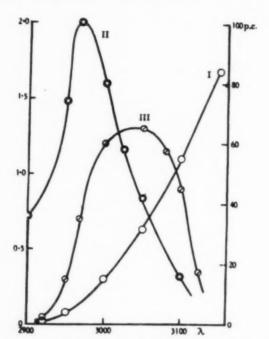


Fig. 3. I: Solar radiation curve according to Petit and Nicholson<sup>23</sup>, W/m²,sec (ordinate left). II: Sensitivity of human skin to the production of erythema according to Hausser and Vohle²². expressed in % of maximal affect (ordinate on the right-hand side). III: A curve obtained by taking the product of the ordinates for curves I and II (scale arbitrary)—Crew and Whittle²³. Curve III illustrates the relative importance of the wavelength of sunlight in producing erythema.

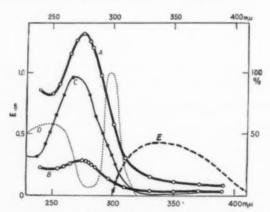


Fig. 4. Curve A, optical density of a five times diluted sample of sweat final concentration  $8\mu g$ . UA per ml., 1 cm. light path, pH\*\*. Curve B, same as A after electrolytical desalting\*\*. Curve C, UA solution 8  $\mu g$ . per ml\*\*. Curve D. erythemogenic activity according to\*\*. Curve E, tanning activity according to\*\*. Curves A,B,C ordinate on the left, curves D,E on the right.

There can be little doubt that in addition to the pigment, the tyrosine-rich horny layer, proteins, and sebum constituents, UA is one of the important physical protective mechanisms against sunburn. This led to the idea that UA, which is such an important sun-screen, could also be used as a constituent of artificial sun-screens in cosmetic or medical indications26. Its solubility in water cannot represent a disadvantage as recent experience27 shows that sun-screen preparations in water or alcohol solutions are superior to those on a fat basis. An aerosol form would also be especially suitable. The protective

film should, of course, be renewed after taking a bath.

The applicability of UA as an artificial sun-screen constituent was verified in laboratory experiments with the usual quartz lamp and in open-air use at the seaside and high mountains28. Emulsions containing 3% UA afforded nearly complete protection. Less concentrated preparations would, perhaps, be more advantageous for cosmetic purposes as, according to Ippen<sup>27</sup>, a moderate erythema should not be totally avoided when good pigmentation is desired.

The main obstacle to the wide practical use of UA on a big scale as a commercial sun-screen is its high price which may be due to the fact that up to now it has been produced only on a limited scale for scientific purposes. Although there is a wide array of cheap sunscreening substances with a high absorption in the erythema-producing range29,30, none of them can be designated as physiological, this designation being applicable only for UA. Its use in sun-screens may be especially indicated for hypersensitive patients for which the usual artificial chemical sun-screens are irritating. Allergic reactions against UA are unlikely as it occurs physiologically in the skin in considerable concentrations. In this connection it may be mentioned that according to Werle<sup>31</sup> UA inhibits the formation of histamine by the decarboxylation of histidine.

Whereas the practical aspect, namely the favorable properties of urocanic acid as a constituent of artificial sun-screens, appears to be established, there remain some unsolved theoretical aspects. One of them is the question of the source of urocanic acid in the sweat and skin, namely where its synthesis takes place and through which constituent of the skin organ it enters the sweat and epidermis32. This problem is the subject of our studies at the present time. It is not only of academic interest, as its solution might well form a rational basis for any attempt to influence the UA level and thus the protecting capacity of the skin against sunburn by means of oral administration of UA or its metabolic precursor, histidine, eventually by dietary means, using one of the histidine-rich proteins.

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# High Density Polyethylene Bottles

A whole new field of product application is emerging from the use of high density polyethylene bottles. The article which follows discusses the contribution of these bottles to the container field.

EDWARD J. TEMPLE\*

POLYETHYLENE SQUEEZE bottles have been with us for more than ten years and they have served us well. We have seen them used as dispensers, dropper packages, spray packages, and containers for bulk shipments. They have been used with a wide variety of products from cosmetics to household items, pharmaceuticals to basic chemicals. The recent development of linings applied to the interior surfaces of polyethylene containers has expanded the number of products which can successfully be packaged in plastic.

But a second development which has been of great interest throughout the packaging industry was the introduction of bottles produced of high density polyethylene. These bottles offer great opportunities for a whole new field of bottle applications and a tremendous expansion of the plastic bottle industry. I think we can understand the enthusiasm of container manufacturers if we examine the high density resins and what they contrib-

ute to the container field.

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## **Description of Resins**

First, let us define what is meant by high density polyethylenes. We use the term "high density" to describe polyethylenes in the density range of 0.941 to 0.965. This density range constitutes the Type III resins defined in the Tentative Specification for Polyethylene Molding and

Extrusion Materials, ASTM D1248-58T. Why is a 0.94 or 0.96 density considered high? Basically because it represents a completely different polyethylene from the earlier types at approximately 0.92 density which became available to us after World War II. The difference in density is small but the differences in the resins and the methods of manufacture are considerable. The low density material is produced by the high pressure process in heavy, expensive equipment. The actual reactor pressure is over 1000 atmospheres, sometimes up to 7000 atmospheres, at temperatures above 212°F. The high temperature tends to promote the growth of branches on the long chains as the ethylene molecules are linked together. The branches interfere with the packing of the chains in tight crystalline arrangements and as a result the polymer made this way typically has a comparatively low crystallinity of 30 to 60 per cent. It follows that the high degree of branching and low crystallinity give a low density polyethylene.

We should mention here that innovations have been made in the high pressure process during the last few years to permit the production of polyethylenes with densities up to 0.94. To identify the various products of the high pressure process a breakdown has been made at 0.925 gm./cc. Polyethylenes of density 0.910 to 0.925 are classed as low density and those of 0.926 to 0.940 are medium, or sometimes intermediate den-

Working with special catalysts, such as organic com-

<sup>\*</sup> Plax Corporation, Hartford, Conn.

pounds of titanium and aluminum, the low pressure polymerization processes were developed by Karl Ziegler in Germany and by Phillips Chemical, Standard Oil of Indiana and Du Pont among others. Utilizing these techniques it is possible to synthesize polyethylene at atmospheric pressure and temperatures as low as 90°F. With the proper conditions, polymer chains can be produced with a minimum of branching, thus forming a strong resin of high crystalline content, 80 to 90 per cent, and, of course, high density.

## **Discussion of Properties**

Resin density is a convenient parameter by which to class polyethylenes, since it is easy to understand and simple to measure. Density also serves as a guide to resin properties since it is directly related to crystallinity which is an important factor in many chemical and mechanical properties.

Table I presents a comparison of a few property values for low density and high density polyethylene.

These property differences mean, of course, great differences in the bottles produced and their applications. With the greater stiffness of high density polyethylene, it is possible to blow bottles of lighter weight which retain enough rigidity to allow easy handling in the filling plant and in the home. Wide mouth bot-

TABLE 1-TYPICAL PROPERTY VALUES-POLYETHYLENE RESINS

	Low Density	High Density
Ultimate tensile strength		
short term, psi.	1,800 - 2,400	4,400- 5,500
Elongation, %	400- 600	25- 180
Stiffness modulus, psi.	20,000-25,000	100,000-150,000
Use temperature, °F.	$<-20^{\circ}$ to $+205^{\circ}$	<0° to +260°
Impact strength—Izod		
(ftlb./in. notch)	13	3-5

tles and jars can now be produced at reasonable weights with neck finishes stiff enough to give good sealing characteristics with standard closures.

This stiffness also alters some of the functional properties which we have been accustomed to finding in plastic bottles. A high density bottle blown at the same weight as a normal polyethlyene spray bottle is difficult to squeeze. If we make the bottle light weight to improve the spray properties, we may find that we have problems in providing a good fit between the spray plug and the bottle neck and, in addition, that the recovery time of the bottle after squeezing is completely different. It is possible to produce good spray packages with high density polyethylene but the bottle shape and weight must be carefully selected to insure proper functioning.

Most of the high density bottles produced now are intended for non-spray end uses. They are carrier-type containers for liquid detergents and shampoos, for household cleaning products and for basic chemicals. They serve as dispensers for lotions and creams and as drop-by-drop applicators of pharmaceuticals. Some are used as laboratory ware and millions have been sold as baby nurser bottles.

The nurser bottles, laboratory ware and pharmaceutical packages illustrate another important property of high density polyethylenes. All of these bottles can be steam sterilized by regular autoclave techniques at 15 pounds steam pressure. One word of caution though; autoclaving should be carried out with the container unsealed or empty. The strength of the polyethylene is considerably decreased at high tem-

peratures and any volatile materials sealed inside may cause rupture of the bottles.

The question of bottle clarity is often an important one with users of polyethylene containers. The higher crystallinity of the high density resins results in a lower degree of clarity but product fill levels are visible through unpigmented high density bottles. All of the polyethylenes transmit ultraviolet light. For light sensitive products or where color is desired for appearance considerations, pigmented bottles can be provided in a wide variety of colors.

To this point we have stopped for only a few comments on each of the bottle properties mentioned, but there are three more items which I think you may be interested in looking at a little more closely. These three are resistance to impact, to stress corrosion cracking and to permeation. Let us consider them in that order.

## **Bottle Impact Properties**

We have already seen that the high density polyethylenes give lower Izod impact values than regular polyethylene. But what can we do to determine the impact resistance of a particular bottle? We have found that a simple drop test of filled bottles can give valuable information. For preliminary evaluation, a random selection of bottles are filled with 70°F. water to nominal capacity and sealed. Drops are made onto an asphalt tile over concrete floor beginning at 3 feet. Each bottle is dropped from this height first on the bottom corner, second on the side and finally on the flat bottom. The same bottles then go though the same three drops at 4 feet, 5 feet and 6 feet or until failure. Thus, any bottle which passes the full test has been submitted to 12 drops. Bottles are examined carefully at each drop level by squeezing and checking for pinholes, splits or obvious leaks. Any water leakage from the bottle is considered a failure. This test, of course, is a tedious chore but it has demonstrated the importance of three critical points-bottle design, machine blowing conditions and selection of proper polyethylene resins. As would be expected, small bottles or bottles with enough polyethylene to give a fairly stiff squeeze usually do not present problems of impact resistance. Problems can occur with larger bottles such as 16 ounce or 32 ounce sizes which have been lightweighted for reasons of economy. We have found that in designing these lightweight bottles it is best to round off any sharp corners and to avoid designs which will cause extreme variations in wall thickness. With poor designs, adjacent thick and thin sections cool at different rates thus giving slightly different crystalline development and setting up internal stresses in the bottle. These areas then fail under strain.

This effect must also be considered in determining blowing conditions. Extrusion temperatures and cooling rates must be closely controlled to achieve the optimum results.

#### **Resistance to Stress Corrosion Cracking**

The second of the three properties we are to examine is resistance to stress corrosion cracking. The first significant work on this phenomenon was done by Bell Laboratories several years ago in connection with cable insulation. A test procedure for determining crack resistance of various polyethylenes was developed and is still used in one form or another throughout the plastics industry. We have converted the test slightly, using a standard polyethylene to test the

products which go into the bottles for activity as cracking agents. With high density polyethylene, an additional test of the blown bottle has been devised to evaluate the finished containers for crack resistance. This consists of filling the bottles with a 33 per cent solution of Igepal CO which is a wetting agent and an active cracking agent. Bottles are then sealed, placed in a pan of Igepal and conditioned at 140°F., for seven days, with daily examination for evidence of cracking. Failures of poor quality containers will normally occur within the first two or three days but good bottles will pass with ease. As is the case with impact properties, producing crack resistant bottles requires attention to design, blowing conditions and raw material properties.

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#### **Bottle Permeability**

Now let us consider the question of permeation. We have conducted well over 3000 routine permeation tests of basic chemicals and customer products since 1949. Looking back over all the data collected, we find that only about 1/3 of these items are considered packageable in regular low density polyethylene. One of the main reasons for rejection of the other two-thirds is loss of certain product components due to permeation through the bottle walls. It is believed that the permeation process takes place basically in the amorphous regions of the polyethylene resin. Thus, high density polyethylene with its high crystalline content would theoretically show lower permeation rates. Our test results indicate that this is true; in fact, we normally find permeation losses of 1/4 to 1/4 those of low density material. There are some chemicals which do not fall in this range. Compounds least affected by the increase in crystallinity are the slow permeators. Greater advantage is found among the faster permeators including compounds of low polarity.

Permeation data on a few selected chemicals are listed in Table 2. The figures present a comparison of the calculated yearly percentage weight losses from 4-ounce Boston Round bottles of low and high density polyethylene. The calculations are based on results of standard twenty-eight-day shelf life tests.

TABLE 2—PERMEATION DATA—4-OUNCE BOSTON ROUND BOTTLES CALCULATED PERMEATION LOSSES (% PER YEAR)

	73	°F	—— 100°F. ——			
	Low Density	High Density	Low Density	High Density		
Methyl salicylate	14.4	1.7	81.	11.		
Paraffin oil light	0.2	0.2	1.6	1.0		
Cetyl alcohol	0.5	0.2	2.7	1.7		
Pure vanilla extract	0.7	0.2	4.9	1.6		
Glacial acetic acid	6.5	1.8	26.	5.2		
Oil of orange	366.	66.	1590.	199.		

It can be seen from the improvement in permeability properties with these typical product ingredients that high density bottles can be utilized with a greater range of products than could be handled in low density polyethylene. Better retention of perfumes and flavorings, as illustrated by methyl salicylate and vanilla extract, and improved resistance to oils, such as the light paraffin oil, are of prime importance here. But we do not wish to present a false picture on the advantages of the high density resins. Although they offer reductions in permeation, there are still many materials such as the oil of orange, which require an entirely different packaging approach. This is one case where interior linings should be considered.

Our interest now, however, is in seeing the permeation effects of a few commercial products in high density polyethylene. Again in Table 3, we will make comparisons of yearly percentage weight losses based on twenty-eight-day tests in 4-ounce Boston Round bottles of equal weight.

TABLE 3—PERMEATION DATA—4-OUNCE BOSTON ROUND BOTTLES CALCULATED PERMEATION LOSSES (% PER YEAR)

	73	°F	100	)°F. ——
	Low Density	High Density	Low Density	High Density
Liquid shampoo	0.4	0.1	3.7	1.0
Suntan lotion				
(alcohol base)	2.0	0.8	9.4	3.5
Suntan lotion				
(emulsion type)	0.4	0.01	4.2	1.4
Pre-electric shave				
lotion	2.7	0.4	21.4	2.8
Insect repellent (diet	hyl-			
toluamide base)	1.5	0.7	9.4	2.7
Tincture merthiolate	1.2	0.2	8.4	0.9

These data point out another factor in determining the proper container for a specific product. Although the over-all permeation losses of most of these items in low density polyethylene are within commercially acceptable limits, there are certain components in several products which necessitate a package with better barrier properties. With the shampoo and the pre-electric shave, high density bottles provided improved perfume retention. The merthiclate contains about 10 per cent acetone which permeates low density polyethylene at an excessive rate. The high density container reduces this acetone loss sufficiently to make the product suitable for marketing. Any of the polyethylenes would be satisfactory for the insect repellent from a permeation standpoint, but the high density material gives a more rigid package for easier control of drop-by-drop application.

#### **Grease Resistance and Bottle Distortion**

We mentioned earlier the fact that high density polyethylenes had better oil or grease resistance than the low density. This does not mean that we can recommend them for use with all oil-base or water-in-oil emulsion products. We still feel that oil-in-water emulsions are preferable for any polyethylene bottle, but we are not quite so restricted as we were with the original squeeze bottle. For instance, mineral oils typically have low permeation rates in polyethylene but they will dissolve into the polyethylene and diffuse through it. On reaching the outer surface, however, they do not evaporate readily and a greasy or tacky film may form. In addition, these oils and certain other compounds, when dissolved in polyethylene, cause it to swell or expand and this eventually produces bottle distortion, more commonly called "collapse." Because of their greater crystalline content, the high density polyethylenes exhibit lower solubility constants and slow down diffusion of the product to the outer surface. We therefore have appreciably fewer problems with greasiness on the bottle surface and less tendency to collapse.

A specific application where we can take advantage of these properties is the packaging of creams in polyethylene jars. A group of cream products has been on extended shelf life test in 6-ounce high density jars for a full year with encouraging results. The initial twenty-eight-day test at controlled temperatures gave permeation results as shown in Table 4.

(Continued on page 48)

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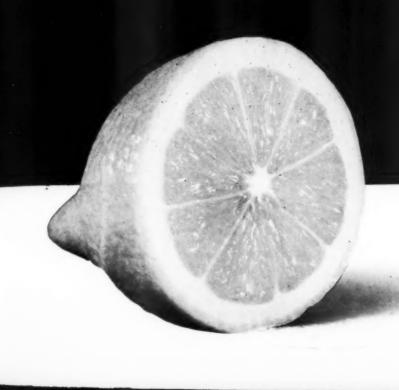


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# THE STATUS OF FOREIGN TRADEMARKS

There is a growing increase in the importance of imported trademark articles. The following paper discusses the manner of protection afforded to foreign trademarks.

DELAVAN SMITH, PATENT ATTORNEY\*

The implementation of goodwill by the use of international trademarks has become increasingly important. The swelling demands of international trade has brought with it an inevitable recognition of foreign trademarks by the United States consumer. Within the last few decades, improved communication and rapid transoceanic transportation of goods in volume have made commonplace the domestic use of items bearing foreign trademarks. Earlier American prejudices against foreign made articles sometimes identified in the mind of the domestic consumer with what he believed were inferior products have largely disappeared. The consumer now looks to foreign manufacturers as the arbiters of elegance and quality. Thus, trademarks such as "Jaguar," "Leica" and "4711" denote goods which compete most favorably in the United States with comparable domestically made merchandise.

As a result of the increasing volume and stature of such imported trademark articles, the manner of protection that can be afforded to foreign trademarks are matters of increasing importance to foreign manufacturers, their United States distributors and even to their domestic competitors.

Little needs to be said for the value of the trademark and of its attaching goodwill which represent to the consuming public the integrity of the manufacturer and the reliability of the product to be purchased. In the early history of trademark protection, goodwill, upon which trademarks necessarily rest, was conceived as a matter of location and geography, "nothing more than the probability that the old customers will resort to the old place." In the 1850's however, the English common law began to divorce itself from the notion that goodwill and trademarks pivoted upon geographic location. This was true as well in the United States where the Supreme

Court broadened the definition to include all advantages acquired by a firm in the execution of its business whether connected with its location, its name or with the general advantages accruing to the business.

The protection of trademarks and goodwill beyond the extent of their geographic genesis is now to be found in such sophisticated legal doctrines as set forth in the U.S.'s Lanham Act4 which govern United States registration of foreign trademarks. The Lanham Act follows and defers to a long line of international conventions and treaties including among others the International Convention of Paris (1883), the Inter-American Convention for Trademark Protection (1929) and the Convention of London (1934). Almost all countries that are significantly engaged in trade are signatory to such treaties which provided their merchant nationals privilege to register their marks in the United States. In addition a network of law, rules and statutes have evolved regarding the use and protection of foreign trademarks used or assigned for use in the United States. How then is this protection exercised and what are its limitations?

#### THE DOMESTIC REGISTRATION OF FOREIGN TRADEMARKS

There was in the United States no common law right which protected foreign trademarks. As a matter of treaty and statute law however, extensive rights are now granted for United States trademark registration by the owners of foreign trademarks. Two distinct paths are open to the foreign trademark owner depending upon his factual situation. In one instance, if the foreign trademarked goods have been in commerce in the United States, the owner of the foreign mark can proceed much as though he were a domestic owner, his application must set forth the use—in commerce—of the marked article. The application is then subject to the same ex-

<sup>\*</sup> Smith & Auslander, N. Y., N. Y.

amination as are marks filed by any domestic applicant.

Alternatively, especially where use in U.S. interstate commerce is nonexistent or difficult to show, the foreign owner may elect to proceed under international convention as reflected in certain provisions of the Lanham Act.5 Although the foreign trademark owner need not show use in interstate commerce in the United States. he must now meet other requirements. Thus, the foreign applicant must be the national of a foreign country signatory to one of the conventions, or must live in or actually be engaged in business in such a foreign country. He must also have registered his mark in the foreign country. The application of the statute may give rise to several possibilities; the applicant may base his registration either on a foreign registration of the country of his nationality, his residence or his commercial enterprise. Thus, if an applicant finds he is not in a position to obtain the reciprocal benefits of the convention from one country, it is entirely possible that he may be able to rely upon registration in another country. The foreign trademark owner must file for registration in the United States within six months of the date that his application was first filed in the foreign country. His application should conform to the requirements for a domestic application under the Lanham Act as closely as possible.

If the foreign owner conforms to the Lanham Act requirements he obtains a registration in the United States which will have the same force and effect as if filed in the United States as of the time of the filing in the foreign country. He will, however, be restricted against suing for infringement for acts committed prior to the date of registration in the United States.

Once the foreign mark has been registered under the terms of the convention, it becomes independent of the foreign registration upon which it is based. The law in the United States will thereafter apply to the trademark; its validity, assignments and termination are subject to the provisions of the United States law. Thus it is likely that even a subsequent invalidation of the foreign mark in a foreign country will not of itself, affect the United States registration.<sup>6</sup>

#### THE ALIENATION OF FOREIGN TRADEMARKS

Foreign manufacturers have often found convenient the use of United States distributors for their products. It has been customary to assign foreign trademark rights to such domestic distributors, especially where the distributor was affiliated or owned by the foreign manufacturer. The right to assign trademarks to a United States distributor has given rise to considerable conflict; the right appears yet to remain, despite continuous attack on the validity of such an assignment.

The Convention of the Union of Paris, which delineates international rights to trademarks and trade names as originally written, failed to regulate the assignment of trademarks. This omission resulted in a diversity of interpretation notably between the United States as exemplified in Bourjois v. Katzel, and in Great Britain as decided in the cases of Lacteosota v. Alberman and In the Matter of John Sinclair Ltd. 10

The Bourjois decision, a leading case in this country, in considering international assignment of trademarks, construed the convention to mean that a trademark was separately assignable by country and that such an assignment could be supported by the grant of an exclusive right to sell together with the goodwill in the country for which the grant was given. The facts of the Bourjois case warrant recapitulation. The plaintiff was an exclusive distributor in the United States of certain trademarked goods. This distributor-plaintiff claimed owner-

ship of these trademarks and goodwill by assignment from the French manufacturer of the goods although the marks were used by the foreign manufacturer before and after the assignment to the United States distributor. In the United States, the distributor packaged and labeled the imported goods and advertised the same. The assignment of the trademarks and goodwill from the foreign manufacturer was confined to the United States.

The defendant in the Bourjois case had purchased some Bourjois goods in Europe and had attempted to sell them in the United States, at which time the U. S. distributor-plaintiff brought his action for trademark infringement. The United States Supreme Court ultimately held that the assignment to the distributor was valid.

In Britain, however, a different view prevailed. In the British Lacteosote case, a French national named "Famel" had assigned to the British Lacteosote company his trademark registration and goodwill in Great Britain, upon which Lacteosote obtained British registration. One Alberman imported some of the original French product into England and was sued. Famel had continued to manufacture and sell the products in France under the original French trademark, before and after the assignment to Lacteosote. Thus, with a factual situation much as in the Bourjois case the British Court held conversely that the assignment to the English company was invalid. on the ground that to obtain valid registration, it was necessary for the English company to acquire the entire international business of Famel, including his French business

In the Sinclair case an English company, Carreras Ltd. registered a trademark for cigarettes in Great Britain which it manufactured and sold. Carreras then purchased John Sinclair Ltd. and assigned its registered British trademark to it. Carreras Ltd. continued the manufacture of the cigarettes employing Sinclair as a selling agent for the cigarettes bearing the trademark affixed by Carreras Ltd. The British Court held that the assignment by Carreras to Sinclair was void for the reason that the right to manufacture the trademarked cigarettes was retained by Carreras and also because the entire business of Carreras had not been assigned to John Sinclair Ltd.

This paradoxical legal situation between U. S. and British Courts resulted from the silence of the convention and led directly to an inclusion of rules governing the assignability of trademarks at the Convention of London, in 1934. Two new sections, incorporating the United States point of view were there added:

#### "ARTICLE 6-D

When a trademark shall have been duly registered in the country of origin, then in one or more countries of the Union, each one of these national marks shall be considered, from the date on which it shall have been registered, as independent of the mark in the country of origin, provided it conforms to the internal law of the country of origin."

#### "ARTICLE 6-Quater

(1) When in accordance with the laws of a country of the Union, the assignment of a mark is valid only if it takes place at the same time as the transfer of the enterprise of business and goodwill to which the mark belongs, it will suffice, for the validity of such transfer, that the part of the enterprise of business and goodwill which is located in this country be transferred to the assignee with the exclusive right therein to manufacture or sell products under the mark which has been

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assigned. (2) This provision does not impose upon the countries of the Union the obligation of considering as valid the transfer of the mark whose use by the assignee would in fact, be of such nature as to deceive the public specially as regards the place of origin, the nature or the material qualities of the products to which the mark is applied."

Two facts appear clearly from these sections.

Firstly, for domestic assignment, there is no requirement that a manufacturer located a foreign country shall have a place of business in the domestic country where the assignment is to be effective.

Secondly, the right to sell in the country in which the assignment is to operate is sufficient to sustain the assignment, even without the exclusive right to manufacture. The sections do not differentiate between a domestic assignee owned by the foreign assignor and those in-

dependent of the foreign assignor.

The Convention of the Union of Paris and the London Revision of 1934 have been ratified by the United States and comprise a treaty now in force. 11 The London Revision of 1934 has been construed as the law of the land without special legislation. Masters, Wardens etc. v. Cribben & Sexton Corp. 12 citing with approval Bacardi Corp. v. Domenech. 13 In the Bacardi case, the legal effect of a treaty similar to the London Revision was considered by the Supreme Court. The Supreme Court in the Bacardi case, expressly held that the Inter-American Convention, after ratification, became a part of United States law and was controlling, without special additional legislation.

The international assignability of trademarks as outlined by the London Convention is a reiteration of the United States law in which the Bourjois decision is the key. The Bourjois case in turn was a re-enunciation of a doctrine earlier set forth in the landmark case of Scandanavia Belting Co. v. Asbestoes & Rubber Works<sup>14</sup> where an exclusive American distributor of English manufactured products was held to have legal title to the mark, without assignment, under the U.S. 1905

trademark act.

Domestically, the issue of assignability where the relationship of manufacturer and distributor exists, was considered in Coca-Cola Bottling Co. v. Coca-Cola Co. <sup>15</sup> In the Coca-Cola case, a syrup manufacturer had assigned the use of its trademarks and goodwill to a regional bottler, the distributor of its products. The Court refused to allow the manufacturer to defeat its conveyance of the trademarks and goodwill, despite the manufacturer's asserted position as a prior user of the marks in question. The supplier's right to convey the mark and goodwill was held to be effective in law, the same as the right to convey any property.

Recent decisions similarly hold to the basic doctrine, of assignability. Thus Corral Wodiska v. Cia v. Anderson, Thorson & Co. 16 dealt with assignability of trademarks and goodwill as between retailer and manufacturer. The Court held that there was no legal obstacle to the assignability of trademarks and goodwill either from the retailer to manufacturer or from the manufacturer to retailer. Even where such a sale is involuntary, the buyer derives a good title. Thus a purchase of assets, goodwill and trademarks from a trustee in bankruptcy conveys full title. R.F.C. v. J. G. Menikan Corp. 17

The law of foreign trade mark assignment was clear, at least until 1954, when the U. S. Patent Office refused registration of many foreign trademarks assigned to United States distributors. <sup>18</sup> These refusals, based upon geographic limitations ascribed by the Patent Office, left in doubt the validity of voluntary trademark assignment.

A subsequent series of Federal Court decisions, however, caused the Patent Office to reverse its stand, and in E. Leitz v. Watson<sup>19</sup> the assignability doctrine of the 1923 Bourjois case was reaffirmed and appears to have removed all bars to registration of trademarks assigned to United States distributing companies. Other cases appear to sustain this view.<sup>20</sup>

A curious situation has arisen as an aftermath of war. After both World Wars I and II, the United States seized and ultimately sold domestically, trademarks and goodwill belonging to foreign enemy aliens. Following World War I, the U.S. government sold the trademark "4711" for perfume. The sale was later held not to have transferred title to the mark as the transfer did not convey the secret process used by the German manufacturers which remained unknown to the domestic purchasers of the mark. "I Without this information, the Court held that the domestic purchasers could not make the genuine article and could not obtain title to the mark."

In general, however, the government's right to seize enemy-owned commercial rights was reviewed and confirmed in *United States v. Chemical Foundation*; <sup>22</sup> its power to seize trademarks and to grant licenses thereunder was confirmed in *Hicks v. Anchor Packing*. <sup>23</sup>

The case of Aktien-Gesellschaft v. Kny-Scheerer Corp.<sup>24</sup> is of special interest. There the trademark "Aesculap" for surgical devices was registered by the German manufacturer in 1900, seized by the United States Attorney General in 1917, and assigned and reassigned to the manufacturer's former American distributor in 1919. This distributor was held to have acquired good title to the mark and the goodwill pertaining thereto, giving it the right to demand and secure cancellation of the German manufacturer's 1930 registration of the same trademark. In Societe Vinicola v. Mumm 25 the German owners of the French trademark "Mumm" first "lost the business through the fortunes for it was seized, together with the French and United States trademarks connected with, by the French "sequestrator" as enemy-owned property during the First World War. In the later decision, supra, the German owners were perpetually enjoined from using the word "Mumm" alone on champagne (or even in combination with other names on the same side of the bottle with the word "Champagne"), such acts being held to be unfair competition against the United States distributors of the new owners of the business and trade-

Most recently in Ercona Corp v. Rogers<sup>26</sup>, the right of seizure & transfer by the U.S. government of the registered trademark "Zeiss" was denied when the Court found that the naked mark alone had been transferred without the goodwill of the business. While this may appear to be only a restatement of the established law that a trademark and its goodwill are inseparable, yet the facts of the case might appear to sustain a position that the goodwill of the "Zeiss" mark had indeed been seized. This case is reported to be on appeal and should be watched for a trend as to the assignability of marks seized by the government.

#### LIMITATIONS ON THE IMPORTATION OF TRADEMARKED ARTICLES

It is possible for the United States owner of a registered trademark to record a copy of his mark with the Treasury Department and exclude the importation of

(Continued on page 48)

# Development And Formulation Of Coal Tar Ointments

The article which follows discusses the development and formulation of coal tar ointments. Based upon an in vitro testing method, such ointments prepared from a concentrate of the alcohol soluable portion of coal tar incorporated into a water miscible base appear to present the best formulation.

WILLIAM R. LLOYD, PH. D.\*

JAMES C. KING, M.S.

Pharmaceuticals designed for local application present unique problems of elegance to the formulator. Their nature dictates that they must be both applied and removed at will, and as easily as possible. The formulation of satisfactory coal tar ointments has, in the past, been the subject of many investigations. Although the use of coal tar in internal medication has been abandoned for over a century, it is still a very valuable dermatological agent. The application of this medication, however, has always been unpleasant to the patient, due to the sticky nature of the tar, its black color, strong odor, and resistance to removal by washing. To the pharmacist, it presents the same problems plus that of incompatibility. Until recently, about the only way the pharmacist could handle its formulation into an acceptable preparation was to make an oleaginous paste using petrolatum, starch and zinc oxide. Some improvements have been made by the use of surface active agents.

The application of asphaltic substances in dermatological practice probably dates back into prehistoric times. The Papyrus Ebers describes the inhalation of smoke from burning bitumen to expel cough, and the use of Naphtha mixed with sagapen and malachite to anoint the eyes for expulsion of water-suffusion (i.e. cataract) (1). The Assyrians (1400 to 607 B.C.) recommended that tar be mixed with sulfur as a fumigant; as a salve for swollen feet and hands; in combination with beer as a sedative for the stomach; and several less rational treatments to deal with "evil spirits" (2). Dioscorides reports that, as early as 100 B.C., the Egyptians were using tar (asphalt) as a preservative in mummification, as were the Byzantine Greeks. In his herbal, Dioscorides describes several forms of asphalts (I, 99-100: V 146, 180) and naphtha (I, 101), along with their medicinal uses, stating that "asphalt is recommended as a panacea against skin afflictions" (3,4). A thousand years later, in the 12th century, we find that asphalt, mumia, was prescribed by the Arabian physician Al Magor, for the treatment of contusions and wounds (5).

However, the tar used at that time was not the same product as our present day Coal Tar. It was, more specifically, natural asphalt found in surface pools. Coal Tar, as we know it today, the by-product of the coking of coal for steel and illuminating gas, did not come into being

until 1681 when a patent was issued to Joachim Bacher and Henry Serle, entitled "A new way of making pitch, and tarre out of pit coale, never before found out or used by any other" (6). This is most likely the same tar to which Samuel Foote referred in 1752 when he wrote of the "salutary application of the asphaltum pot" in a discussion of the preservation of the complexion. In the eighteenth century, coal tar was claimed to be a "sure cure for ringworm, boils, gout, epilepsy, blindness, toothache and colic" (7).

Coal tar in therapeutics made its reappearance in modern pharmacy in 1859, when MM. Corne and Demeaux prepared a mixture of coal tar with plaster of Paris, to be applied on dressings or to be sprinkled freely on ulcerated surfaces (8). In the next year, M. Demeaux recommended a disinfectant soap made from coal tar, soap, and rectified spirit (9). It was about this time that the American Pharmaceutical Association listed an emulsion made from coal tar, tincture of quillaja, and water as a convenient emulsion for injecting into ulcers (10).

From the turn of the 20th century, the preparations become more familiar, and still exist essentially in their original form today. Otto Raubenheimer suggested a formula for the preparation of liquor picis carbonis which became official in the fourth edition of the National Formulary (11, 12). That formula remained without change until 1955, when, in the U.S.P. XV, the quillaja was replaced by Polysorbate 80. Coal Tar Ointment made its first official appearance in the sixth edition of the National Formulary, as a mixture of 5% coal tar in zinc oxide paste.

Before discussing the development of the ointment, it is important to review the efforts that have been made in an attempt to improve on the undesirable qualities of the tar itself, namely its black color, disagreeable odor, stickiness, unpredictability and incompatibility. As pointed out by Goldstein, the approaches to the problem of formulating a pharmaceutically elegant preparation have followed two general paths; the admixture of some of the colorless constituents of coal tar, and the use of distilled or certain solvent soluble fractions of the crude tar (13). Following the former plan, Guy, Jacob, and Weber compiled a rather comprehensive listing of isolates from crude coal tar (14). Based on that tabulation,

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<sup>\*</sup> University of Texas, Austin, Tex.

Table I-Cosmetic Evaluation of the Ointment Bases

Base	Emulsifier												
	Conc. Emuls.	PSL	SM	DSS	SLS	R	PSL/SM 5%						
мно	1%	T	TG	F	A	3/7	A						
	2%	A	TG	A	A	4/6	A						
	3%	A	A	A	A	5/5	A						
	4%	A	TD	A	A	6/4	A						
	5%	A	TD	A	A	7/3	A						
WOB	1%	A	Т	F	A	3/7	A						
	2%	A	T	F	A	4/6	A						
	3%	A		F	A	5/5	A						
	4%	A	T		S	6/4	A						
	5%	A	T		S	7/3	A						

MHO — Modified Hydrophilic Ointment; WOB — Washable Ointment Base; PSL — polyoxyethylene sorbitan monolaurate; SM — sorbitan monolaurate; DSS — dioctyl sodium sulfosuccinate; SLS — sodium lauryl sulfate; R — ratio of PSL to SM; A — acceptable; D — dry; F — frothy, wet; G — grainy; T — texture unsatisfactory; \*— became wet and grainy at end of seven months.

they recommended the following formula for synthetic

Anthracene		1.10%
Naphthalene		10.90
Phenanthrene		4.0
Carbazole		2.30
Picoline		
Pyridine		
Quinoline	each	0.58
Penol		0.70
Petrolatum, to	make	100

Saunders and Davis reported that a commercial preparation of a synthetic coal tar cream was clinically as effective as tar (15). The formula for the product was as follows:

Anthracene	0.066%
Naphthalene	0.654
Phenanthrene	0.240
Carbazole	0.138
Picoline	0.033
Quinoline	0.038
Phenol USP	0.042
Cresol USP	0.047
Water	50.0
Triethanolamine Stear	ate
Cetyl Alcohol	
Glycerin	
Petrolatum	
Colored with amaranth	and flavor iasmine

An *in vitro* evaluation of the active ingredients of these two formulae has been made and will be discussed subsequently.

Following the second approach, the use of coal tar fractions, Nelson and Osterberg incorporated the product of a double steam distillation of tar into a base of zinc oxide, starch and petrolatum. They found that preparation ineffective in the treatment of infantile eczema, apparently the beneficial constituents had been removed (16, 17). Other formulations involved the use of the alcoholic solution of coal tar with quillaja (18, 19).

R. A. Anderson prepared a fraction which was compatible with greaseless and paraffin bases and water-in-oil emulsion bases, by evaporating the alcohol from a coal tar solution. When the residue was mixed with the polyoxyethylene derivative of sorbitan monostearate, an oil-in-water emulsion could be formed (20). The authors

prepared a similar fraction, using polyoxyethylene sorbitan monooleate. They evaluated the efficacy of that fraction which they called coal tar oil, in combination with a series of ointment bases prepared with varying concentrations of several selected emulsifiers. The coal tar oil gave in vitro inhibition response, using Trichophyton mentagrophytes as the indicator organism, which compared faborably with crude coal tar (21). It was not the intent of the authors to examine the fungistatic properties of the tars, per se, but to use the fungus to measure the degree of release of medication from the various combinations.

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Included in this study, the authors attempted to determine the effect of the various emulsifiers upon the formation of emulsion ointment bases, especially of the oil-in-water type, and upon the release of medication from those bases. Cosmetic acceptability was also considered. Until very recently, ointment bases were restricted almost entirely to animal fats and hydrocarbons. The animal fats, chiefly lard and lanolin, were subject to rancidity or, in the case of lanolin, were too sticky to be cosmetically acceptable. Therefore, petrolatum was widely used up until the last two decades, when synthetics, such as the polymers of glycols, and hydrogenated oil, sulfonated and sulfonated-hydrogenated oils, began to make their appearance. Until these materials and the vast array of surface active agents were developed, ointments were characteristically greasy mixtures.

The classical formula for Coal Tar Ointments was given by Dr. C. J. White (22). It was simply a mixture of coal tar in a zinc oxide paste, and was subject to variation in color. It was believed that the order of mixing influenced both the color and therapeutic value. Apparently neither of these beliefs are entirely correct (23, 24). Lassar, who introduced pastes in 1883, maintained that part of their virtue was their porosity, and even though fats are impermeable to water, he claimed that, by the capillary action of the solid constituents, serum would be drawn from the skin, penetrate the layer of paste and evaporate at the surface. "This theory, although appealing, can no longer be accepted" (24). It appears, in relation to Coal Tar Ointment, that the addition of the large quantity of solid components was necessary to avoid separation of the components of the mixture, and even though the ingredients are therapeutically harmonious, the loss of efficiency would seem tremendous. The addition of an emulsifier overcomes at least two of the greatest difficulties in this preparation, namely incompatibility and absorptive ability (23, 25,

The color of the finished product is probably an index of the degree of distribution of the coal tar. Coal tar ointments which are green usually have large globules of undispersed tar; those which are black may have the tar covering those ingredients which normally would lighten the color of the preparation. The inclusion of a surface active agent yields a light to chocolate brown ointment with a smooth, even distribution of tar. Carney and Zopf found that when 0.5 percent of polyoxyethylene sorbitan monolaurate was mixed with the crude coal tar in the preparation of a one percent coal tar ointment, the finished product was as effective as the older ointments containing two and five percent crude coal tar in zinc oxide paste. Their ointment, described as being medium gray, displayed reduced particle size as the result of the inclusion of the surfactant (25). The ointments prepared by the authors, using the coal tar oil previously described, presented no compatibility problems and were light yellow in color. The color could be modified by inclusion of cosmetic dyes, if designed. Although the odor of the coal tar oil ointments is milder

than that of the crude coal tar preparation, it might be adjusted further by the addition of a perfume.

The overall evaluation of the texture of and consistency of an ointment base cannot be made completely by objective physical means-much of it remains subjective. To determine whether any particular base is washable, grainy, greasy, dry, or frothy, an actual application to the skin gives the most satisfactory results. Methods can, and have been, devised to assess spreadability, which is governed by a complicated set of factors. Penetrometer measurements are valuable in determining whether the consistency is great enough for the material to hold its shape or whether it is too thin even to fit the definition of an ointment. However, this method does not express the characteristics of drag or pull, which are of extreme importance if the ointment is to be applied to abraded skin. The procedure described by Kostenbauder and Martin, using a modified Stormer viscometer, produces better, more reliable, results (27). It is quite

Table II-Consistency Measurements of the Ointment Bases

	Emulsifier										
Base	Conc. Emuls.	PSL	SM	DSS	SLS	R	PSL/SM 5%				
мно	1%	12	5	19	10	3/7	13				
	2%	9	6	7	8	4/6	11.5				
	3%	7	8	6	13	5/5	11				
	4%	6	7.5	5	8	6/4	9				
	5%	5	8	8.5	10	7/3	6				
WOB	1%	11			9	3/7	6.5				
	2%	10			9	4/6	7.0				
	3%	9			7.5	5/5	6.5				
	4%	8.5		13		6/4	7.0				
	5%	8.5		18		7/3	8.0				

White Petrolatum, U.S.P. standard: 6

Key: as for Table I; values are depth of penetration as described.

possible that an ointment base, acceptable to one test, would not be to the other. It has been found that, generally, as the proportion of emulsifier is increased the consistency is also increased. The effect is the same as repeated homogenization. It follows, as would be expected, that washability is likewise improved. However, depending upon the system, the texture may become unsatisfactory. In the case of oil-in-water emulsion ointment bases, this is especially true when emulsifiers of extremely high or low HLB values are used. In these same emulsions, the release of medicament seems to be enhanced by increased concentration of the predominately oil-in-water emulsifiers. There is a point, however,

at which the further addition of surfactant will begin to diminish the availabilty of the drug (28, 29). This is substantiated in the following tables.

The following three tables are presented to show how the cosmetic acceptability, consistency, and release of medicament are affected by several different emulsifiers in varying concentration. None of the values are appreciably affected by the addition of the medicament. The cosmetic evaluation of the bases is based upon subjective appraisal by the authors. Consistency evaluations were made by dropping a 5 Gm, steel bar, inscribed at 1/16 inch intervals, into the ointment from a constant height. These values are valid only when interpreted in comparison with the others of this study. In vitro release, as measured by the inhibition of Trichophyton mentagrophytes (ATC 9129), is shown in Table III (21). The Modified Hydrophilic Ointment Bases are designed from Hydrophilic Ointment, U.S.P. XV, in which the 5% of polyoxyl 40 stearate has been replaced with 1 to 5 percent of the specified emulsifier. Frequently one encounters an ointment base which is composed of a large number of the substances, chiefly stiffeners and softeners, generally used in ointment formulations. The following washable ointment base was designed to be representative of that type of preparation.

Methylparaben	0.025	Gm.
Propylparaben	0.015	Gm.
Stearyl Alcohol	10	Gm.
Cetyl Alcohol	10	Gm.
Spermaceti	5	Gm.
Propylene Glycol	10	ml.
Liquid Petrolatum	10	Gm.
White Petrolatum	10	Gm.
Emulsifier	q.s.	
Purified Water	40	ml.
To make about	100	Gm.

Melt the stearyl alcohol, cetyl alcohol, spermaceti, liquid petrolatum and white petrolatum together on a water bath and heat them to 75°. Dissolve the other ingredients in the water, warm to about 75°, and then add the melted oils with stirring. Stir until the mixture congeals.

Zinc oxide is somewhat bactericidal but not fungicidal. Aspergillus niger will grow readily on zinc oxide emulsions. Too, it has been observed that the parts of the body affected in dermatophytoses are those regions of the highest zinc concentration (30). Therefore, although the value of the zinc oxide may be open to some question, especially if some dermatophyte may be involved, the following formula was developed as a washable coal

Table III—Inhibition (in mm.) of Trichophyton mentagrophytes by Coal Tar in Modified Hydrophilic

						Oint	tmen	t Da	ses and	ı wasn	able	Ulni	tment I	bases.								
Emuls. PSL			SM				DSS				SLS				PSL/SM 5%							
Base	%	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	R	1	2	8	4
МНО	1	9	10	10	0	10	10	8	S	C	C	C	C	10	12	15	S	3/7	7	5	5	2
	2	14	15	12	5	9	10	10	S	C	C	C	C	15	21	C	8	4/6	5	5	5	2
	3	14	15	12	5	7	7	6	S	C	C	C	C	C	C	C	15	5/5	5	5	5	2
	4	14	15	14	5	5	6	3	S	C	C	C	C	C	C	C	20	6/4	7			
	5	12	12	10	5	4	5	3	S	C	C	C	C	C	C	C	C	7/3	7	11	8	
WOB	1	2	2	2	0									S	S	S	0	3/7	1	1	2	0
	2	2	2	2	0									2	2	2	0	4/6	2	2	2	0
	3	2	2	2	0									2	2	2	0	5/5	S	S	S	0
	4	3	3	3	0													6/4	2	2	2	0
	5	3	3	3	0													7/3	2	2	2	0

#1 — coal tar, 3%; #2 — coal tar 6 parts, polysorbate 80 1 part, 3%; #3 — coal tar oil; #4 — control; S — less than 1 mm.; C — greater than 20 mm.; R — ratio of PSL to SM; remainder same as for Table I.

tar and zinc oxide ointment. It is light vellow, pleasantly textured, comparatively non-staining and washable. Inhibition zones compare favorably with the Hydrophilic Ointment Base counterpart, i.e. about 12 mm.

Emulsified Coal Tar Ointment	t
Zinc Oxide	150 Gm.
Starch	150 Gm.
White Petrolatum	320 Gm.
Polyoxyethylene Sorbitan Monolaurate	40 Gm.
Coal Tar Oil*	20 ml.
Propylene Glycol	120 ml.
Stearyl Alcohol	6 Gm.
Purified Water	140 ml.
To make about	1000 Gm.

Melt the white petrolatum and stearyl alcohol on a steam bath, add the starch and zinc oxide and stir the mixture with mechanical stirring until smooth. Dissolve the polyoxyethylene sorbitan monolaurate and the propylene glycol in the water. Heat both mixtures to 70°, add the aqueous solution to the oleaginous and stir until nearly congealed. Add the coal tar oil and continue stirring until the ointment congeals. \*(21)

Table IV—Evaluation of Commercial Coal Tar Preparations

Description		Inhibition of T. mentagrophytes (in mm.)
1% special crude coal tar and J.5% polyoxyethylene sorbitan monolaurate in zinc oxide paste.	Gray-brown, non- washable, sticky.	0
5% each Burow's solution, solution of coal tar and starch in non-greasy base.	Tan, washable, creamy lexture.	6
5% coal far solution, 2.5% colloidal sulfur, 3% salicylic acid, 5% zinc oxide.	Light yellow, incompatible with water, dry texture, tendency to roll.	16
Steam distillate (repre- senting crude coal ter— 15%), 15% zinc oxide and 25% starch.	White, non-washable, creamy texture, greasy.	0
Steam distillate (representing crude coal tar—6%), 6% zinc oxide.	White, non-washable, creamy texture, greasy.	0
Special process extract of coal tar 5%, lanolin and menthol in greaseless stearate cream.	Light yellow cream, freely washable.	0
2.88% whole crude coal tar in special hydrophilic base.	Green-black, thick paste, non-washable.	0
7% alcohol, solution of coel tar N.F. 10% (equaling 2% of coel tar), zinc oxide 15%, starch 25%, in base of white petrolatum, liquid petrolatum and lanolin.	Light yellow, creamy texture, greasy, some separation of constituents, non-washable.	0
15% crude coal far of low carbon content and 0.2% chlorhydroxyquinolin in cream base.	Gray, creamy texture, greasy, non-washable.	10
4% cetyl alcohol-coal tar distillate, 3% sulfur and 3% salicylic acid in washable base.	Light yellow, pearly cream, gritty (possibly crystals of salicylic acid), freely washable.	6
1.25% of a coal tar fraction combined with zinc oxide and starch in proper proportions.	White, creamy texture, greasy, non-washable.	0
<b>Emulsified Coal Tar Ointmer</b>	nt (see above)	10

A group of commercial coal tar preparations has been evaluated along with a series of synthetic coal tar ointments made from the active ingredients of the two formulae previously presented, in combination with the modified hydrophilic and zinc oxide emulsion ointments. An appraisal of these ointments is given in the tables.

The active ingredients of the formula recommended for a synthetic coal tar by Guy, Jacob, and Weber (GJW), and the active ingredients of the formula tested by Saunders and Davis (SD) were combined, in proper proportions, with certain of the Modified Hydrophilic Ointment and Zinc Oxide Emulsion Bases, previously described. All of these formulae were white, pleasantly textured, and freely washable. With the exception of the Zinc Oxide Emulsion Base, incorporating dioctyl sodium sulfosuccinate as emulsifier, all were stable enough to be subjected to extended storage. The inhibition zones of these ointments are given in the following table.

Table V-Inhibition of T. mentagrophytes by Synthetic Coal Tar Mixtures.

	SD	Control	GJW	Contro
Modified Hydrophilic Ointmen	t Base			
PSL, 5%	5	0	8	S
DSS, 5%	9	6	12	7
SLS, 5%	10	0	5	0
PSL 50%, SM 50%, 5%	5	0	4	S
Zinc Oxide Emulsion Base				
PSL, 4%	8	S	10	S
DSS, 4%	12	10	13	10

#### Summary

The development and formulation of coal tar ointments have been discussed. Based upon an in vitro testing method, coal tar ointments prepared from a concentrate of the alcohol soluble portion of coal tar incorporated into a water miscible base appear to present the best formulation. Both release of medication and cosmetic acceptability are enhanced.

Certain synthetic coal tars are also effective when incorporated into the water miscible bases. Generally, better release seems to be obtained when the bases have been prepared with anionic emulsifiers.

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## The Biological Effects

## Of Polyoxyethylene Esters

The following material is from the weekly publication of the Society of Chemical Industry. What follows are the minutes of a question and answer period following the reading of a paper before the Food Group and Oils & Fats Group.

Dr. J. R. Nicholls, C.B.E., chairman of the Food Group of the Society of Chemical Industry, took the chair at the joint meeting with the Oils & Fats Group held at Brunel College, Woodlands Avenue, London, W.3, on January 21 when Prof. A. C. Frazer read a paper on "The biological effects of polyoxyethylene esters."

After saying that the views he would express would be his own, Prof. Frazer indicated the chemical structure of the compounds present in commercial polyoxyethylene esters, their uses in food and the general desirability of specifications. The normal diet might contain some 0.025% of these substances on a wet basis. The LD<sub>50</sub> for several test animals, including hamsters on nutritionally adequate diets, was considerably in excess of 5 g. per Kg. body weight. In long term studies, polyoxyethylene esters added to the diet up to a level of 10% did not significantly affect weight gain; nor was this affected by diets containing the maximum quantity of bread or cake treated with ten times the normal level of treatment with the esters. Higher levels of treatment were precluded by palatability effects. Groups of animals fed these diets also failed to show any significant difference from those fed appropriate control diets with regard to life span, survival rate, fertility, number per litter, offspring, development, rate and gastro-intestinal, renal or hepatic function, blood biochemistry or physiology. These negative findings through three generations of animals were similar to those obtained by other investigators.

Some further studies had recently been carried out on higher dosage levels. Thus, feeding 20% and 25% of poloxyethylene stearate in the diet did result in some reduction in the rate of weight gain, although the animals still appeared healthy. If this weight gain was plotted against calorie intake, a regression line could be

calculated showing the number of calories required to allow a body weight gain of 1 g.; and also the number of calories required to maintain body weight. When the data from the high level feeding studies were treated in this way, it could be shown that the animals in these groups had a more efficient utilisation of calories than the control groups. This would be the expected result of calorie restriction and clearly showed that the reduced weight gain was not due to a toxic action. A similar study of the effect of high level dosage on renal function was made. In this case 20% and 25% levels caused a significant increase of renal weight, but in neither case was there any evidence of histopathological change. At 10% polyoxyethylene stearate, which is still several hundred times the proposed level of use in food, the renal changes completely regressed and all tests gave results indistinguishable from those of the control group.

Life span studies with oral administration at several hundred times the dosage level proposed in food had been carried out by many investigators without any demonstrable change in tumour incidence between the experimental and the control groups, except for occasional bladder tumours associated with stones. Such tumours had never been observed apart from stones, and stones were only found with excessively high levels of feeding. Parental tests, especially in rats, were unsuitable for the investigation of this problem. A so-called co-carcinogenic action of polyoxyethylene esters had been demonstrated. This consisted of the application of the esters in high concentration to the skin, either with or after a sub-threshold dose of a potent carcinogen with the consequent development of tumours (which did not develop in the animals receiving the ineffective dose of carcinogen alone). Bile salts and several other surface active substances had been shown to have a similar effect. Since bile salts occurred in the intestine in considerably

<sup>\*</sup>Reprinted from Chemistry & Industry, March 7, 1959.

higher concentrations than polyoxyethylene esters, it seemed most improbable that this phenomenon was of any significance in relations to the use of these esters as food additives. Human feeding trials using doses of 4—6 g. per day for up to four years have caused no demonstrable effects. Prof. Frazer concluded by saying that the polyoxyethylene esters had been investigated as much as, and probably more than, any other food additive; one could not conclude otherwise than that they had stood up remarkably well to this searching examination.

Following a lively discussion, Dr. T. Malkin, chairman of the Oils & Fats Group, proposed a hearty vote of thanks to Prof. Frazer, and this was carried enthu-

siastically.

#### Discussion

Dr. R. D. Hill: Lusky and Nelson have recently published evidence of the production of subcutaneous sarcomas and lymphosarcomas in rats by polyoxyethylene esters administered parenterally; would Prof. Frazer comment on this?

Prof. A. C. Frazer: I did point out the unsatisfactory nature of parenteral tests in rats. Berenblum and Haran (Cancer Research, 1955, 15, 510) state "It is becoming harder and harder to define non-carcinogenicity; if the test organ is sufficiently sensitive (e.g., the subcutaneous tissue of the rats), even olive oil appears to be a weak carcinogen." Lymphosarcomas have also been observed after the intraperitoneal injection of dietary fats. In my opinion, this type of observation may be of great interest in cancer research but it is irrelevant to the question of carcinogenic risk following oral administration of these substances. It is also of interest that polyoxyethylene glycol has been shown to be anticarcinogenic; after ingestion it is this substance which is present in the body rather than the unhydrolysed ester.

Dr. F. H. Banfield: Could Prof. Frazer offer any guidance as to the probable length of time necessary to produce satisfactory pharmacological evidence for a new food additive for the purpose of the Food Standards

Committee?

Prof. Frazer: At present, life-span studies are thought to be necessary. These cannot be carried out with rats in under two years. In my opinion, it would be difficult to complete all the necessary studies on a new food additive and to submit them to adequate statistical analysis in much under three years. The availability of full chemical and physical information about the additive and a good method of analysis will, of course, greatly facilitate any bio-chemical or pharmacological studies, and the absence of such information is likely to cause considerable further delay.

Mr. M. Spencer: If polyoxyethylene stearate is amenable to enzymic breakdown in the intestinal lumen, does not Prof. Frazer consider ethylene glycol itself a toxic

hazard?

Prof. Frazer: I have been informed by the manufacturers that these substances do not contain more than traces of lower glycols and this has been our experience. I consider that this point should be covered by specifications for these materials and I understand that it can readily be checked chromatographically. Degradation of the higher glycols does not seem to occur to an appreciable extent in the body.

Mr. B. E. Harper: Do not the co-carcinogenic properties present a risk to bakers and other food handlers?

Prof. Frazer: So far as I know, there is no evidence that the minute amounts of these esters in food could exert a co-carcinogenic effect. The effect requires the repeated application of relatively high dosage levels of the esters, as well as the presence of a potent carcinogen.

Mr. D. M. Freeland: What sort of degree of purity for the complex polymeric mixtures so far as specifications for these compounds is envisaged?

Dr. J. R. Nicholls: Arising from the same question, I should like also to know whether the specifications will include suitable methods of analysis for their enforce-

ment.

Mr. C. M. Keyworth: The degree of purity must depend primarily on the quality of the raw material; and then on considerable technical skill during manufacture. Obviously the ethylene glycol content must be kept at a minimum, and it is possible to keep this below 0.05%. Suitable methods of analysis are available, so that an agreed specification can be clearly envisaged. The polyoxyethylene esters must be regarded as synthetic fats, similar in many ways to the very complex naturally occuring fats; their technical purity can be similarly evaluated.

Prof. Frazer: I should like to stress again the importance of reasonable specifications for food additives. I think it is also important to appreciate the need for

adequate methods of analysis.

Mr. E. Mitchell Learmonth: In what condition were the raw materials added to the food of experimental animals, cooked or otherwise? If cooked, were the ma-

terials (and the results) thereby affected?

Prof. Frazer: This, of course, is a most important point in all studies of food additives. Long-term studies are usually required, both on the substance itself added to a basal diet and on appropriate food treated at the highest practicable level with the additive. This food must, of course, pass through all the usual processes that are normally applied to it. In all the long-term studies I have described today, both these aspects of the problem have been examined.

Dr. Hill: In view of their amphipathic nature, would not polyoxyethylene esters lead to an increase in the superficial absorption of food proteins and thus to an increase in the allergicity of the sensitising proteins, producing various forms of contact allergy in the food

industry?

Prof. Frazer: I think the quantities involved and the fact that the esters are intimately mixed with the food would probably prevent any such action. I do not know of any evidence to suggest the occurrence of this type of effect.

Mr. E. M. Bavin: Are polyoxyethylene esters (up to about 5% concentration) considered to be innocuous in

cosmetic preparations?

Prof. Frazer: If they are so used, I presume the answer to this question is "yes." I imagine that appropriate tests have been carried out on this problem; if not, I think they should be.

Mr. F. P. Jenkins: Are the esters adsorbed; and if so,

how has this been demonstrated?

Prof. Frazer: Yes, by the disappearance of the materials from the gastro-intestinal tract and the demonstration of the polyols in the urine.

Dr. A. E. Bender: If only 10% was recovered, is there any degradation?

Prof. Frazer: The 10% recovery was in human experiments and there might be several explanations for the low figure. Some studies have been done on degradation, with particular reference to the formation of oxalates, since oxalate stones were occasionally observed with higher level feeding. These studies did not, however, show any significant increase in oxalate formation; some of the stones found have been phosphate. We have been anxious to do more detailed studies on the distribution and fate of polyoxyethylene glycols for some time. Such studies are probably not essential, but they would have

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enabled me to answer your question more adequately.

Dr. T. Malkin: It is difficult to follow the metabolism of these polyethylene glycol esters when the doses are very small, but in larger doses a proportion can be found unchanged in the faeces.

Dr. Bender: Is it necessary to investigate both function and histopathology in the kidney and liver; is histological damage ever observed with normal function or

vice versa?

Prof. Frazer: My colleague, Mr. Sharratt, has recently carried out an extensive study of kidney structure and function following the administration of graded doses of nephrotic agents. The tests used included blood and urine biochemistry, concentration and dilution tests, phenol red excretion, inulin clearance, measurement of effective tubular mass, autopsy appearance, renal weight and histopathology. With acute poisoning, many effects were observed, but with minimal chronic poisoning most of the

function tests did not give results that were significantly different from controls. The most sensitive of these tests was the concentration test. However, damage could be demonstrated by histopathology, so that it would appear that functional efficiency was kept within normal limits by adaptive hypertrophy. This was confirmed by the further finding that the renal weight was significantly increased in groups receiving the toxic agnt, as compared with the controls. We consider that measurement of concentrating power, renal weight, histopathology, and perhaps urine and blood biochemistry, enable any deleterious effect on the kidney to be detected. I wish I could say that we could dispense with histopathology, as it is timeconsuming, requires experienced workers and the results are barely semi-quantitative; but I am afraid our results clearly indicate its prime importance at the present time. We are now doing a similar study on hepatic structure and function, and I expect the answer will be similar.

## What's in That Morning Coffee Aroma?

Chemists find roasted coffee has more than 30 volatile components, with still more to be found.\*

What makes roasted coffee smell so good? A combination of over 30 volatile components, Albert Zlatkis of University of Houston told the Division of Agriculture and Food Chemistry. He isolated and identified these by gas-liquid chromatography and mass spectrometry. Included in the aroma, says Zlatkis, is a pentadiene, which is probably isoprene, and a complex mixture of  $C_4\text{-}C_7$  olefins and paraffins. Eventual goal of the work: a synthetic coffee aroma to be used in instant coffee or in a synthetic coffee beverage.

But the analysis of the aroma is still incomplete; still to be analyzed is a high molecular weight fraction which probably contains more components than the essence fraction which was analyzed. Being much less volatile than the essence fraction, it has been difficult to analyze quantitatively by mass spectrometry, but Zlatkis feels that current developments in gas chromatography, which use ionization detectors and capillary columns, will help to further the analysis.

The analysis to date should be a big step toward making the synthetic coffee aroma essence, however, Michael Sivetz, now with Cafe Soluble de Nicaragua in San Francisco and with J. A. Folger and Co. at the time of the study, prepared a mixture of the components identified in the aroma essence fraction and found that it gave an aroma similar to the original natural essence.

#### QMC, Too

U.S. Army Quartermaster Research and Engineering Center (QREC), Natick, Mass., has also analyzed coffee

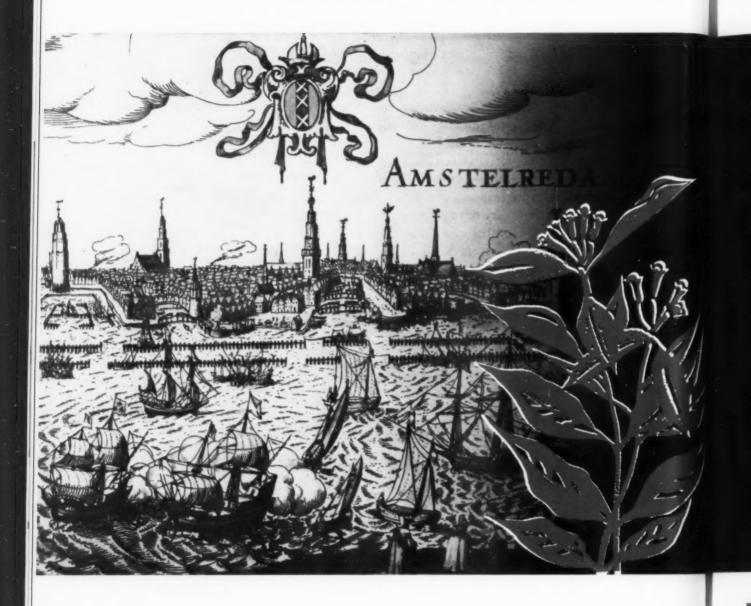
\*Reprinted from Chemical and Engineering News, April 20, 1959, page 51. Copyright 1959 by the American Chemical Society and reprinted by permission of the copyright owner.

aroma using an analytical mass spectrometer with gas chromatography and high vacuum techniques. James H. Sullivan, QREC, told the division that QREC's work thus far has identified 23 compounds and has tentatively identified six more.

#### These Compounds Put the Smell in Coffee

WE	IGHT	DRY VACUUM
AROMA ESSENCE PER O	CENTA	AROMA VOLATILES
Acetaldehyde	19.9	
Acetone	18.7	
Diacetyl	7.5	Methyl formate
n-Valeraldehyde	7.3	Ethyl formate
2-Methylbutyraldehyde	6.8	Methyl acetate
3-Methylbutyraldehyde	5.0	Formic acid
Methyl furan	4.7	- 0111110 110111
Propionaldehyde	4.5	Acetic acid
Methyl formate	4.0	Propionic acid
Carbon dioxide	3.8	Water
Furan	3.2	Acetone
Isobutyraldehyde	3.0	Methyl ethyl ketone
Pentadiene	3.0	
Methyl ethyl ketone	2.3	C <sub>6</sub> ketones
C4-C7 paraffins and olefins	2.0	Ethyl alcohol
Methyl acetate	1.7	n-Butyraldehyde
Dimethyl sulfide	1.0	Isobutyraldehyde
n-Butyraldehyde	0.7	C <sub>e</sub> aldehydes
Ethyl formate	0.3	Furfural
Carbon disulfide	0.2	
Methyl alcohol	0.2	Furfural derivatives
Methyl mercaptan	0.1	C <sub>5</sub> esters
Thiophene	0.1	
	100.0	

## SPICE OIL IS A DUTCH BUSINESS



The Dutch have been identified traditionally with the spice and spice oil trades. Their ships have traversed the oceans of the world to the Levant and Barbary Coasts, the Islands of the Indies and the Pacific, bringing their aromatic cargo home to Amsterdam the spice market place for the world.



## SPICE OIL IS A "NAARDEN" SPECIALITY

"Naarden"s extensive international research an modern distillation processes combined with traditional Dutch familiarity with spices, provide the standard of worldleadership which "Naarden" has maintained for half a century in spice, woods an seed oils, "Naarden"s original clove vanilline - mad from pure clove spice - reflects this heritage.



"Naarden" nearest to Nature!



A NEW HIGHLY REACTIVE ALUMINUM HYDROX-IDE COMPLEX FOR GASTRIC HYPERACIDITY In Vitro Rate of Acid Neutralization

By E. T. Hinkel, Jr., M. P. Fisher, and M. L. Tainter A new highly reactive form of aluminum hydroxide polymer has been developed which takes up acid faster and in larger amounts than conventional aluminum hydroxide dried gel under conditions similar to those existing in the hyperacid stomach. Using this new form of aluminum hydroxide a tablet has been compounded which, in the recommended dose, neutralizes acid several times faster than comparable tablets in their therapeutic doses, at pH levels which will practically inactivate gastric pepsin. It also neutralizes about three times as much total acid as previously available tablets under these same conditions. The new tablet, as a result of this greater activity, should provide a more effective means of controlling gastric hyperacidity than previously available tablets. J. Am. Pharm. Assoc. Sci. Ed. XLVIII, 7; July, 1959, 380-383.

THE EFFECT OF MOUTHWASHES ON THE ORAL FLORA. Morris Ostrolenk and William Weiss. J. Pharm. Assoc., Sci. Ed., 48, 210 (1959). A study has been made of the efficacy of several commercial mouthwashes representing as many classes of chemical agents. The method employed tends to represent, as closely as possible, the conditions of use. The selective antibacterial activity of the washes was measured in terms of "before" and "after" total bacterial counts, and the incidence of streptococci, staphylococci, fusoform bacteria, and lactobacilli. There is included a study of the length of time that elapses after the use of the mouthwashes before the number of bacteria in the oral cavity reaches the number present before washing. Data obtained from these studies indicate that each of the compounds significantly reduces the total bacterial count in the mouth, and that some deal selectively with microorganisms. Each mouthwash, however, leaves residues of active bacteria among those removed from the oral cavity by a rinse technique. It appears that the effect of the compounds is of short duration.

EFFECTS OF ELECTROLYTES ON THE STABILITY OF ZINC OXIDE SUSPENSIONS. Yun Shik Koh and Raymond E. Hopponen, Univ. Kansas School of Pharmacy, Lawrence, Drug Standards, 27, (1), 21 (1959). The effects of a number of salts of citric, tartaric, succinic and malic acid on the stability of zinc oxide suspensions were studied. Sodium potassium and ammonium bitartrates were found to produce a marked reduction in the settling rate. A combination of bitartrate and Veegum produced suspensions of excellent stability. These studies were extended to the development of calamine lotion formulas which might possess

advantages over the official formula. The resulting formulas are described.

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HYDROGENATED PHOSPHATIDES. G. Jacini (American Lecithin Co., Inc.) U.S. 2,870,179. Phosphatides are hydrogenated at 75 to 80° at 50 to 150 atm. in the presence of finely powdered nickel and platinum as a catalyst. J. Am. Oil Chemists' Soc., 36,187 (1959).

STUDIES ON RESORPTION THROUGH THE SKIN WITH THE HELP OF RADIOACTIVE ISOTOPES. By incorporating radio-active isotopes in the substances contained by the ointments, their resorption through the skin has been studied from the decrease in the intensity of radiations. The effect of the condition of skin and various basic materials in the ointments on resorption have been the main points under study. Fette-Seifen Anstrichmittel, May, 1959, 374.

DETECTION OF FOOD PRESERVATIVES BY PAPER CHROMATOGRAPHY, A. C. Cooke (Dominion Lab., D.S.I.R., Wellington, New Zealand). N.Z.J.Sci., 1958, 1 (3), 412-416.—In the method described for detecting preservatives in foods, 20g of solid macerated with water, or 50 ml of beverage, is acidified, and, after addition of 10 ml of ethanol, is extracted with CHC13; the solvent is evaporated, and the residue is dissolved in ethanol and chromatographed on paper, with n-butanolethanol 3 N aq. NH3-3N ammonium carbonate (40:11: 9-5:9-5) as solvent mixture. Fluorescent spots are detected by the u.v. fluorescent screen technique, and outlined with pencil, and the paper is then sprayed with diazotised p-nitroaniline, followed by Na2CO3soln; this colours m- and p-hydroxybenzoic acids red, vanillic acid purple, vanillic esters mauve, salicylic acid orange, thiourea yellow, and some other preservatives pink. Aliphatic acids do not interfere. The Rr values of 19 preservatives and 8 food constituents are listed. M.D. Anderson Anal. Ab., 6 (5), May, 1959, 1925.

PAPER-CHROMATOGRAPHIC IDENTIFICATION OF SORBITAN FATTY ACID ESTERS, POLY-ETHYLENE GLYCOL FATTY ACID ESTERS, AND POLYETHYLENE GLYCOL SORBITAN MONO FATTY ACID ESTERS. R. Schrepfer and H. Egle (Forschungslab. Nahrmittelwerk W. Eiselen, Ulm, Germany). Z. Lebensmitt Untersuch., 1958, 107 (6), 510-512.—The esters, separated from bakery additives by extraction with CHCl<sub>3</sub>, are saponified by ethanolic KOH. In preparation for chromatographic analysis, unsaponifiable matter and fatty acids are removed from the acidified soln. by extraction with benzene, and inorganic ions are removed from the neutralised soln. by passage over strong cation- and anion- exchange resins. Development is effected in n-butanol saturated with water. The dried

chromatogram is sprayed with a Pb tetra-acetate reagent. The R<sub>F</sub> values of the alcoholic constituents of the esters are tabulated. A 50% ethanolic soln. of glycerol and sorbitol is used as a standard. P. S. Arup. Anal. Ab. 6, (3) March, 1959, 985.

ERROR IN THE SAMPLING OF SOAP AND DETERGENT BARS FOR MOISTURE DETERMINATION. L. Gildenberg and E. W. Blank (Colgate-Palmolive Co., Jersey City, N.J., U.S.A.). J. Amer. Oil. Chem. Soc., 1958, 35 (2), 102-103.—The A.S.T.M. method of sampling soap and combination bars, which permits the bar to be quartered and shavings taken from the freshly cut surfaces, can give results that are not representative of the mean moisture content. Samples taken from 24 points in one bar of soap had moisture contents varying from 9.10% to 10.97%. Either the whole bar or a symmetrical portion should be taken for analysis. G. Burger. Anal. Ab., 6 (3), March, 1959, 986.

ANALYSIS OF LIPSTICKS BY PARTITION CHRO-MATOGRAPHY. M. E. Pietrak and S. H. Newburger (Div. Cosmetics, Food and Drug Admin., Dept. of Health. Education and Welfare, Washington, D.C., U.S.A.). J. Ass. Off. Agric. Chem., 1958, 41 (2), 435-440.—The method described is applicable to both "castor oil" and "oleyl alcohol" types of lipstick. Treatment with trichloroethylene and acetone separates the lakes and fillers: the filtrate is evaporated, the residue is dissolved in heptane, mixed with silane-treated Celite, packed in a tube, and eluted with 50% ethanol, which removes fluorescein dyes and polyethylene glycols. Acetic acid (95%) then elutes castor oil or oleyl alcohol and oil-soluble dyes. Hydrocarbons and waxes, which remain on the column, may be eluted with CHC13. The procedure for purifying and weighing the fractions is described. The constituents of the fractions are identified by infra-red spectrometry. A. A. Eldridge, Anal. Ab., 6 (3), March, 1959, 988.

REACTION BETWEEN QUATERNARY AMMONIUM SURFACE-ACTIVE AGENTS AND METHYL ORANGE. G. Nebbia (Bologna Univ., Italy). Chim. e Ind., 1958, 40, 638-640. Methyl orange forms a salt with equimolar amounts of quaternary ammonium surface-active agents, which is sol. in fat solvents but of low solubility in H<sub>2</sub>O. The surface-active agent may be determined by extraction of the reaction mixture with CHC1<sub>3</sub> and measurements of the extinction at 425 mu. L. A. O'Neill. Anal. Ab., 6 (3), March, 1959, 1089.

A NEW HIGHLY REACTIVE ALUMINUM HYDROX-IDE COMPLEX FOR GASTRIC HYPERACIDITY II In Vitro Buffering Range and Duration of Action. By E. T. Hinkel, Jr., M. P. Fisher, and M. L. Tainter. A new. highly reactive polymeric aluminum hydroxide hexitol complex has been developed and incorporated into an antacid tablet. When tested in comparison with a liquid aluminum hydroxide gel of proved clinical effectiveness, the new Creamalin tablet has an almost identical duration of action and buffering range. When tested in comparison with ten leading aluminum hydroxide tablets using an in vitro method recognized as having good correlation with in vivo experience, the new Creamalin tablet exerts its buffering activity in the optimal range for much longer periods than the others. Effective antacid therapy has been defined as the elevation of gastric pH to between 3.0 and 5.0 with the optimum being 3.5 to 4.5. The new Creamalin tablet should provide a highly effective and convenient antacid for poising gastric hyperacidity within this optimal range. J. Am. Pharm. Assoc., Sci. Ed., XLVIII, 7, July, 1959, 384-388.

PERFUME DERMATITIS, Klarmann, E. G.: Ann., Allergy 16: 425, 1958. Allergic sensitivity to perfume has long been an accepted fact, but little work has been done to establish the exact nature of the processes involved. The author points out the specific nature of certain of the sensitizing chemicals found in perfume and the cross reactions which may occur with chemically and botanically related substances. A large number of essential oils are known to be factors in the development of allergic dermatitis and cheilitis. Perfumes may also act as inhalant allergens and produce upper respiratory symptoms. To date, little is known concerning the irritant and sensitizing potential of perfumes and perfume ingredients or of the concentrations in which these potentials become manifest in the form of clinical dermatitis. Little is also known concerning the existence of sensitizing synergisms or antagonisms of groups of materials found in perfume, such as floral and essential oils and aromatic synthetics. The fixation of a perfume to the skin by means of some vehicle, such as a cream, a lipstick, or a face powder, may have a markedly different effect upon the skin than the transitory application resulting from a perfume or a toilet water. The absorption of essential oils by the skin may be an important factor in these problems. Although most cosmetic chemists have attempted to eliminate allergenic or sensitizing ingredients from their products, the presence of perfume is still a common and ouite likely source of sensitization. H. F. J. Allergy, 30 #3, May-June, 1959, 36.

ABSORPTION OF CHIMYL ALCOHOL IN MAN. R. Blomstrand and E. H. Ahrens, Jr. (Univ. of Lund, Sweden and Rockefeller Inst., N. Y. City). Proc. Soc. Exptl. Biol. Med. 100, 802-5 (1959). Results of feeding labelled chimyl alcohol to a patient with chyluria indicated that the alcohol was almost completely absorbed and that rupture of the ether linkage occurred in the intestinal mucosa. The liberated palmitic alcohol moiety was readily oxidized to palmitic acid. J. Am. Oil Chemists' Soc., 36, 317 (1959).

THE RISE IN INCIDENCE OF NICKEL SENSI-TIVITY. Poul V. Marcussen, Dept. Dermatology, The Finsen Institute, Copenhagen. brit. j. dermatol., 71, 97 (1959) . . . Relation to Well Known Sensitivities. Routine tests in 1936 showed nickel sensitivity to be eighth in frequency, against third in 1955, exceeded only by sensitivity to primula and balsam of Peru. Between 1936 and 1955 it became more frequent than sensitivity to chromates (1943), colophony (1944), formalin (1946), turpentine (1950) and mercury (1955). The incidence of chromate and formalin sensitivity remained fairly constant throughout the period, but the rise in nickel sensitivity is surpassed by that to balsam of Peru, for which there is no accounting so far. Skog and Thyresson (1953) found nickel sensitivity to be rarer than chromate and formalin sensitivities in Sweden in 1948-51 and Thyresson and Skog (1953) found it rarer than chromate and turpentine sensitivities in 1951-52. Fisher and Shapiro (1956) calculated that sensitivity to paraphenylenediamine was more frequent than that to nickel. However, sensitization to paraphenylenediamine has been almost rooted out in Denmark.

ANTIMICROBIAL SUBSTANCES FROM SEEDS. Jasper C. Maruzzella and Martin Freundlich. Dept of Biology, Long Island Univ., Brooklyn, N. Y. J. Am. Pharm. Assoc., Sci. Ed., 48, 356-358 (1959). One hundred and ninety-five extracts were prepared from 39 seeds of drug origin and screened in vitro against the following test organisms: Escherichia coli, Staphylococcus aureus,

(Continued on page 52)

#### Bottles-

(Continued from page 31)

TABLE 4—CALCULATED PERMEATION LOSSES (% PER YEAR) CREAM PRODUCTS IN 6-OUNCE JARS

	73°F.	100°F.
Hand cream, o/w	2.1	5.5
Cold cream, o/w	2.3	5.4
Vanishing cream, o/w	2.2	9.0
Dry skin cream, w/o	1.5	5.0
All purpose cream, o/w	1.7	
Facial cream, o/w	1.9	

The test jars showed no indication of collapse or greasy surface after the twenty-eight-day test period, and after an additional eleven months at room temperature all show good oil retention and good appearance.

It should be pointed out here that some instances of bottle collapse can be traced to causes other than swelling of the polyethylene. Absorption of oxygen from the bottle airspace into the product or extremely high permeation of the product can both set up a partial vacuum condition in the bottle. Conventional polyethylene bottles collapse easily to equalize the pressures, but the high density polyethylenes, because of their greater rigidity, provide improved resistance to this collapse tendency.

#### **Lightweight Containers**

Now that we have seen the comparative data on permeability of the polyethylene resins, we can look again at the matter of light weighting high density bottles. Permeation losses are inversely proportional to bottle thickness so we can reason from the data in Tables 2 and 3 that bottles of high density polyethylene can be produced at weights considerably less than normally used with low density material and still afford equivalent, or even improved, product retention. As we mentioned earlier, these light weight high density bottles are practical from both production handling and consumer use viewpoints because of the inherent rigidity of the polymer. The lower bottle weight gives lower costs. Thus, for the proper applications, plastic bottle manufacturers can now offer an attractive commercial container of good quality at favorable price levels.

#### Summary

In addition, I would like to emphasize that the basic advantages of high density bottles which we have cited apply to small capacity packages of 1/4 ounce up through the pint, quart, gallon and possibly larger sizes

I hope that what has been presented here will give you an understanding of our enthusiasm for these new containers and that it may be of value to you in determining whether your products can profit from such a package.

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#### Trademarks-

(Continued from page 36)

articles which bear this trademark.27 This right of exclusion arose originally in the Trademark Act of 1905, the predecessor of the present Lanham Act provisions. In the beginning, the restriction on importation was applied only to spurious goods. In 1923, however, the U.S. Supreme Court decided that the provisions should apply to genuine goods as well and that the control of its importation was in the hands of the domestic trademark registrant who could prevent his competitor from importing the articles.28 Ultimately, the prohibition was extended to the restriction against the importation of articles even for the personal use of the importer.29

Where the United States trademark registrant and the foreign manufacturer were in fact parts of a single enterprise the right of the United States registrant to record and exclude trademarked articles under the provisions of the Tariff Act, has been made open to some question. In 1937 the Treasury Department attempted to limit the use of the trademark restriction provisions where the United States registrant was the same entity as the foreign manufacturer. In 1953 the Bureau of Customs withdrew the protection of the section if the United States registrant was "related to the foreign manufacturer" but such limitation has only been applied to marks recorded after the new regulations were enacted. A bill was presented but was not enacted which proposed a repeal of the trademark importation restriction of the Tariff Act.

Most recently, in U.S. v. Guerlain30 the lower Federal court decided that where only the barest proof appears to tie the foreign manufacturer with the United States trademark registrant, the protection of the Tariff Act would not be accorded the registrant. This decision was appealed directly to the Supreme Court, but before being heard by the Supreme Court, was withdrawn by the government. It may be speculated that this withdrawal was anticipatory to the passage of new legislation which more clearly defines the rights of United States registrants to bar the importation of imported trademarked articles. So far, however, such legislation has not been enacted.

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- 3 F 2a 19, 272 U. 3. 1 (1926) 16 F 2nd 823 (1926) 75 F 2nd 638 (1935) 25 F Supp. 289 (1935) 120 U.S.P.O. 100 Tariff Act of 1930, see 526, Lanham Act, sec. 42. Bourjois v. Aldridge, 263 U. 5. 675 Sturges v. Clark D. Pease Inc., 48 F. 2nd 1035. 153 F. Supp 77

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now available with the beautiful Futura Cap in brilliant Goldcote or other finishes



Sizes available: 11/2 dram, 2 dram, 1/2 oz., 1 oz., 2 oz., 4 oz.



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Observe the beautifully designed silhouettes of the new Ambassador perfume bottles and the perfect blending of the caps. You can understand our enthusiasm when you consider that each beautifully designed Ambassador is-fitted with the fabulous SPH<sub>4</sub>L-PROOF feature. Also available in standard open neck finishes.

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#### BARBARA GOULD-1

A new black and gold lipstick display case is announced by Barbara Gould. The case has a gently curving glass-enclosed front and a slanted, dust-proof storage area in the rear. It boasts removable color plugs and shade titles which allow new additions to the "Lustr" lipstick line to be introduced. The trademark is scripted in gold against black as are the lipstick shade names; the lipstick plugs provide the only color deviation.



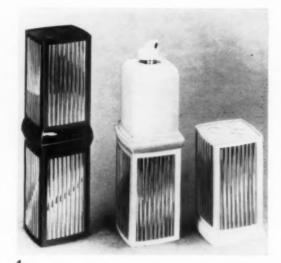
#### TILFORD-2

Tilford packages its Toilet Water Mist in a gold and antique white package. The aerosol, tear-drop-shaped crystal bottle nestles in a gold reflector stand. The Toilet Water Mist is available in three fragrances, "Vain", "High Heels" and "Woody Glen." The bottle retails for \$2.50.

#### HONEY HARBOUR-3

Honey Harbour Company suggests a new use of fragrance. The manufacturers of Woolite and Lastic Life, cold water soaps, assure users of their products that a few drops of cologne combined with the soap will leave girdles, sweaters and other fine garments sweetly and lastingly scented.







5.

#### COTY-4

Coty has just introduced a new line of Petite Mist. The all-plastic combination is highlighted by top and bottom panels of fluted, metallic-like insets on all four sides of a two-part aerosol type spray container. The package comes in two colors, black and in white, with the only decorative note being the eight panels of non-tarnishable gold. The entire decor, excluding labels, is supplied by Mirro-Brite Mylar.

#### **GERMAINE MONTEIL-5**

A new liquid eye liner, "Idol-Eyes", containing a special light-reflecting shimmer ingredient, lumium, is announced by Germaine Monteil. The eye liner is presented in a quarter-ounce hexagonal bottle and has a sable brush with tapered tip attached to the golden plume-shaped cap. "Idol-Eyes" comes in ten colors and retails for \$3.00.

#### HELENE CURTIS-6

The development of Enden, medicated shampoo, stressed its manufacturer Helene Curtis, marked the first time one of the prime chemicals necessary for the remedy of dandruff was effectively and safely incorporated into a shampoo. A scientific survey shows that Enden is effective in all but 1.9% of cases. The shampoo is available in three forms, Clear Golden Liquid, Lotion, and Cream. Each form is offered in two sizes, retailing for  $79\phi$  and \$1.50.

#### **LEHN AND FINK-7**

To promote its new liquid douche for femine hygiene, Lysette, Lehn and Fink is offering a special "one free with two" introductory offer, good until October 16. The new douche will be presented to the public in free heat-sealed foil packets containing sufficient liquid for one use in special counter displays for drug stores. The five-ounce clear glass bottle, molded to fit the hand, will retail for  $99\phi$ .





Serratia marcescens, Mycobacterium smegmatis, Candida albicans, Erwinia caratovora, and Streptomyces Venezuelae. The DIETHYL ether and acetone soluble fractions were found to possess greater antimicrobial activity than the ethyl alcohol, n-butyl alcohol, and water-soluble fractions. Sixteen of the 39 seeds were found to have no antimicrobial activity. Extracts of cardamon (green), tonka angostura, and celery were found to have antimicrobial activity on at least 6 of the 7 test organisms as well as against 12 additional microgranisms. Concentration of the extracts to less than one-half the original volume did not increase antimicrobial activity.

ANTI-INFLAMMATORY ACTIVITY OF COM-POUNDS OBTAINED FROM EGG-YOLK, PEANUT OIL AND SOYBEAN LECITHIN. O. H. Ganley, O. E. Graessle and H. J. Robinson. (J. Lab. clin. Med., 1958, 51, 709). Various fractions of peanut oil, soybean lecithin and egg-yolk were tested for anti-inflammatory activity in three different anti-inflammatory assays. Crystalline fractions of all three substances in a dose of 3 ug./kg. i.p. were effective in inhibiting the swelling of joints produced in the guinea pig by a local joint anaphylaxis reaction. The active factor in all cases was identified as N (2-hydroxyethyl)-palmitamide and the synthetic compound was found to be as active as the natural crystalline product. Ethanolamine, a degradation product of N(2-hydroxyethyl)-palmitamide was also found to be active while palmitic acid was inactive. By substituting various groupings of ethanolamine, pharmacological activity was shown to be associated with a high degree of chemical specificity. The fractions were inactive both in the pellet assay in which an inflammatory response is produced in rats by implanting cotton pellets impregnated with a non-virulent culture of Micrococcus pyogenes var. aureus and in the Evan's blue test in rats in which inflammation, produced by the subcutaneous implantation of cotton pellets, is reflected by an increased permeability of the capillaries to the dye. Thru j. Pharm. Pharmacol. 10, 649 (1958).

A NOTE ON THE SUSPENDING PROPERTIES OF NU-FILM AND CLEAR FLO H. Edward Stempel, Brooklyn College of Pharmacy, Long Island Univ. (Drug Standards, 26, 118, July-August, 1958). This investigation indicates that Nu-Film solution 5% which occupies 40% of the volume of the finished suspension may be considered a suitable suspending agent in preparations containing precipitated sulfur 5%, half-strength Whitfield's combination, coal tar solution (N.F. IX) 5%, ichthammol 10%, boric acid 10%, or resorcinol 2%. Clear Flo H solution 3% is not as efficient as the same volume 5% equal to 40% of the volume of the finished product, the viscosity is satisfactory for pouring. It is advisable to add suitable preservatives to the starch-derivative stock solutions and perhaps to the finished suspensions as well.

TEST PAPER FOR DETECTING PEROXIDASE. H. J. Morris (Western Reg. Lab. Abric. Res. Service, U.S. Dept. of Agric., Albany, Calif.). J. AGRIC. FOOD CHEM., 1958 6 (5), 383-384.—Test papers for detecting peroxidase were prepared by immersing filter-paper in a freshly prepared ethanolic soln. containing 0.5% of urea peroxide and 0.5% of o-tolidine, air-drying in dim light, and storing over anhydrous CaCl<sub>2</sub> during refrigeration in the dark. Qual. tests for peroxidase are made by moist-

ening the paper with a soln, of the material to be examined; the presence of the enzyme is indicated by development of a blue colour. M. D. Anderson, Anal. Ab. 6 (2), 683-692.

DETERMINATION OF CAMPHOR IN HO-LEAF OIL. Teikichi Hiraizumi and Akira Komatsu (Takasago Perfumery Co. Ltd., Kamata, Tokyo). Perfum. Essent. Oil Rec., 1957, 48 (8), 387-388.—The oxime method for the determination of camphor in Ho-leaf oil gives higher results than those obtained by i. r. analysis, owing to the presence of other carbonyl compounds. Ho-leaf oil is a two-component system of linalol and camphor, and its absorbance at 1743 cm<sup>-1</sup> is used for the determination, the camphor content being obtained from a calibration curve, within the range of 0.5 to 2.6% of camphor. Holeaf oil contains approx. 1% of camphor. H. B. Heath. Anal. Ab. 5 March, 1958, 923-930

PHOSPHORYLATED PHOSPHATIDES. D. J. Hennessy and R. J. Mosby (American Lecithin Co., Inc.) U. S. 2,839,545. A process is described for the preparation of a phosphorylated, peroxidized phosphatide having less than 50% of the original number of double bonds and an increased solubility in aqueous systems and water. The phosphatide is first treated with an organic peracid, such as peracetic, perpropionic, or perlactic acid. The peroxidized phosphatide is then reacted with phosphorus pentoxide. The reaction occurs without substantial destruction or charring. Thru J. Am. Oil Chemists' Soc., 35, 488 (1958).

No. 2.853,423. AEROSOL SUN-SCREENING COMPOSITION, patented by Anthony L. La Via, Brooklyn, N. Y., assignor to Mathieson Chemical Corp., New York. An aerosol composition is covered consisting essentially of: a sun-screening agent; a propellant; and a water-repellant, film-forming liquid ester vehicle of high flash point, said ester having an acid moiety selected from the group consisting of higher alkanoic acids, higher alkanoic acids and higher alkanedioic acids, said acids not having more than 18 carbon atoms and an alcohol moiety selected from the group consisting of saturated, unsubstituted lower aliphatic monohydric alcohols, lower alkylene glycols of low molecular weight, sorbitol and mannitol. Soap and Chemical Specialties, November, 1958, p. 139.

QUANTITATIVE COLORIMETRIC METHOD OF ANALYSIS FOR CITRAL IN LEMON OIL, by W. L. Stanley, R. C. Lindwall, and S. H. Vannier, Fruit and Vegetable Laboratory, Western Utilization Research & Development Div., Agri. Research Serv., U. S. Dept. Agri. Pasadena, Calif. The aldehyde, citral, is the component in lemon oil responsible for the typical lemon aroma. Methods of analysis used in the past for determining the citral content of lemon oils, however, were nonspecific and measured only total carbonyl content. A specific method for citral in the presence of other aldehydes and ketones has been developed. It is based on the discovery that citral with a reagent mixture of vanillin and piperidine in absolute alcohol forms an alcohol-soluble green complex (absorption maximum 605 mu). Other carbonyls produce yellow, orange, or red colors. Only dihydrocitral and pseudoionone interfere. The method provides a highly sensitive and selective objective tool for evaluation and standardization of lemon oil quality and should be useful in following the effects of process variables and agronomic conditions on the composition of lemon oils. J. Agri. & Food Chemistry, Nov. 6, No. 11, 858 (1958).

(Continued on page 54)



## Reheis Chlorhydrol...



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MATHEMATICAL INTERPRETATION OF THE KINETICS OF ELEVATED TEMPERATURE STA-BILITY STUDIES AS APPLIED TO SOLID FORMU-LATIONS. By Stuart P. Eriksen, John F. Pauls and Joseph V. Swintosky, When using kinetic principles and the Arrhenius equation to predict shelf life, it is convenient to use exaggerated storage temperatures. However, it is sometimes difficult to attain temperature equilibrium rapidly in these cases, and because accurate heating time estimates are essential for precise shelf life predictions, the time lags during sample heating and cooling may seriously affect the prediction accuracy. In this paper an equation is presented which relates the sample heating rate, storage time, temperature and the heat of activation of the breakdown reaction. The solution of the equation is expressed as "Equilibrium Temperature Time Equivalent" or ETTE, and represents the effective time of storage at the oven temperature. The ETTE takes into account the finite time lag in attaining temperature equilibrium during the heating phase and during cooling after removal from the oven. A sample calculation is presented to indicate the magnitude of the error involved in using sample storage time which does not correct for the time necessary to attain temperature equilibrium. The ETTE permits the formulator to correct either storage times or his sampling times, thus making the error negligible. J. Am. Pharm. Assoc., Sci. Ed., 47, 697 (1958).

TRACE ELEMENTS IN EDIBLE FATS. VI. STABILIZING OLIVE OIL BY "DEMETALLIZATION" WITH ION EXCHANGE RESINS. A. Vioque, Ma del Pilar Villagran and R. Gutierrez Gonzales-Quijano. Grasas y Aceites 9, 10-13 (1958). Virgin olive oils, dissolved in acetone are eluted through a column of cation exchange resins. After elimination of the solvent, no metallic traces remain in the oil. These "de-metallized" oils show an increased stability as compared to the original oils. It is shown that traces of metals greatly reduce the stability of oils. In the case of iron, a relation is shown to exist between its concentration and the stability of the oil. Thru J. Oil Chemists' Soc., 35, 377 (1958).

THE STABILITY OF THIOGLYCOLLATE SOLU-TIONS. Part I. Effects of Method of Preparation of Solutions, pH and Temperature Upon the Oxidation of Thioglycollate. A. M. Cook and K. J. Steel (Dept. Pharmaceutics, School of Pharmacy, Univ. London, Brunswick Sq., London W.C. 1). The pH of, and amount of oxidation occurring in, thioglycollate solutions is influenced by the method of preparation of the solution. the oxidation of the resultant thioglycollate increases with increase in pH and temperature of storage. Solutions prepared without heat may exhibit a more alkaline reaction than expected. Storage of such solutions causes a fall in their pH, the extent of which is determined by the temperature and time of storage. The effect of storage at different temperatures upon the oxidation of thioglycollate is not as great with unheated solutions as in heated solutions. Oxidation of thioglycollate is increased by dilution. The dithiodiglycollate, produced on oxidation of thioglycollate, itself undergoes decomposition in alkaline conditions. J. Pharm. Pharmacol., 11, No. 4, 216 (1959).

STUDIES IN ANTIBACTERIAL VAPORS OF VOLATILE SUBSTANCES, by Thomas C. Grubb, Vick Chemical Co. Bloomfield, N. J. J. Am. Pharm. Assoc., Sci. Ed., 48, No. 5, 272 (1959). Two simple methods are described for making a quantitative estimate of the bacteriostatic and bactericidal action of vapors from volatile sub-

stances. One method is used for static exposure periods of twelve to eighteen hours, the other is for dynamic exposure periods as short as one second. The results of screening twenty-two compounds by the former method are described. The types of bacteria commonly associated with respiratory infections were employed as test organisms. It is interesting to observe that many of the drugs which have been employed empirically many years for the inhalation therapy of respiratory infections display a measurable degree of in vitro antibacterial and antiviral activity.

ZUM ENXYMATISCHEN FETTSAURE-ABBAU DURCH SCHIMMELPILZE

Von Prof. Dr. W. Franke, Dr. W. Heinen and Dipl. Chem. A. Platzeck

Aus dem Institut fur Garungswissenschaft und Enzymchemie der Universitat Koln

ENZYMATIC DEGRADATION OF THE FATTY ACIDS BY MOLD FUNGUS. The degradation of fatty acids of medium molecular weights to the methyl ketones under the influence of enzymes as Phycomycetes and Ascomycetes etc. is established. The presence of fatty acid dehydrase in the extracts of mold fungii is proved with the help of Thunberg Method. The author indicates that the degradation of enzymes takes place over coenzyme A-derivative. The addition of DPN is considered to be necessary. A highly stable B-ketocarboxylase has been detected in the extracts of methyl ketone components. Fette.Seifen Anstrichmittel, April, 1959, 264.

HAUTRESORPTIONSVERSUCHE MIT RADIOAK-TIVEN ISOTOPEN Von Dr. J. Vonkennel und Dr. H. Kutzim Aus der Universitats-Hautklinik Koln (Direktor: Prof.

Dr. J. Vonkennel)

DERMATITIS OF THE FACE CAUSED BY GUANINE IN PEARLY NAIL LACQUER. Stritzler, C.: Arch. Dermat. 78: 252, 1958. Four patients with a patchy eczematoid dermatitis of the eyelids, face, chin, and neck, who showed negative patch test reactions to ordinary nail lacquer, had positive reactions to pearly or frosted nail lacquer. Patch tests made with the individual ingredients in the nail lacquer, such as the solvent, plasticizer, resin, and pigment, also gave negative reactions, but tests made with the pearly material were positive. Since the pearly material is made from the fish scales of sardines and consists mainly of guanine, patch tests were performed with pure powdered guanine and powdered defatted sardine fish scales. Positive reactions were obtained with oil of these substances in the 4 patients, and negative responses were observed in 20 control subjects. All the patients were able to tolerate ordinary nail lacquer. Reactions to tests with sardine meat and the olive-oil extract of skinless and boneless sardines were negative. All four patients could eat sardines with or without scales with no untoward effects. None of these persons had handled or had had any previous contact with sardine scales or skins. Patch tests performed with chemicals similar to guanine, such as adenine, uric acid, caffeine, theobromine, and adenylic acid, were "all negative, suggesting that the NH, in the 2 position was essential to provoke the reactions." R. W. 2 position was essential to provoke the reactions. J. Allergy, 30 #3, May-June, 1959, 35.

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## Trade Literature

The following booklets have come to the attention of the staff of *American Perfumer & Aromatics*. They are available to readers from the sources mentioned. *Editor*.

#### PVP

Antara Chemicals, a Sales Division of General Aniline & Film Corporation, has published a booklet describing the effectiveness of polyvinylpyrrolidone (PVP) in reducing the toxicity and sensitivity problems inherent in phenols and other compounds. PVP modifies the physiological properties of many compounds by forming molecular adducts with them. Hence it may permit certain chemicals to be used in applications for which they would otherwise be too toxic, irritating or skin fatiguing.

#### **Electric Truck**

The major features of the construction and operating characteristics of the battery-powered industrial truck are presented in a new industry-sponsored 18-page booklet. As the new literature presents many quotations of what users have to say about the product, the folder title is, "Why We Use Battery-Electric Industrial Trucks." This informative promotional piece is published by the Electric Industrial Truck and Allied Products Manufacturers, Pittsburgh 22, Pa.

#### **Shut-Off Valves**

New 4-page Bulletin F-47 on No. 10 Safety Shut-Off Valve is now available from OPW-Jordan. Originally designed for service station use, the safety shut-off valve finds wide industrial application with hazardous liquid lines of all types. It shuts off automatically if a break in the pipe line occurs preventing loss of product and hazardous conditions. In case of fire a fusible link melts to close the valve. Bulletin illustrates valve, describes features, applications, engineering data, and money saving operation (can be tested in the line).

#### **Warburg Apparatus**

A continuous dynamic Warburg apparatus that will automatically determine levels of carbon dioxide concentration down to parts per million is described in a 2-page methodology sheet available from Technicon Controls, Inc., New York. The analytical procedure described can be employed in determining carbon dioxide in gaseous state and carbonates and bicarbonates by the liberation and measurement of CO<sub>2</sub>. Flow diagram, calibration curve and actual recording are included.

#### Solvents

A new 40-page booklet describing the properties and uses of Cellosolve and Carbitol glycol-ether solvents, has just been published by Union Carbide Chemicals Company, Division of Union Carbide Corporation. The booklet contains comprehensive data for 14 glycolether solvents, including physical properties, chemical derivatives, end-use possibilities, storage and handling, physiological properties, specification limits, and test methods. A detailed bibliography and reference section is included.

#### **Enzyme Applications**

The enzyme approach to fermenstory of the latest issue of Research Comments published by Evans Research, New York City independent industrial research laboratory. "Understudy for a Microbe" describes how enzymes are rapidly becoming important in replacing classical fermentation methods, and how fermentation is being used as a method of producing enzymes. These new approaches are discussed as having future significance in the production of antibiotics, steroids, beer,

whiskey, wine, vinegar, and other products. A bright future for industrial biosynthesis is predicted. "Research Comments" is a series of scientific articles published by Evans Research for the past ten years. Copies of "Understudy for a Microbe" can be obtained from Development Department, New York, N. Y.

#### **Product List**

A newly revised products list of Hooker Chemicals has just been published by Hooker Chemical Corporation, Niagara Falls, New York. The new bulletin, No. 100-C, contains brief descriptions, physical data, uses and shipping information with respect to the manufactured by Hooker's Phosphorus Division are separately listed and described in a new two-page supplement which is also available.

#### **Molecular Sieves**

A new booklet entitled "Chemical Loaded Molecular Sieves" has just been issued by the Linde Company, Division of Union Carbide Corporation. Molecular sieves have been known for some time as superior absorbents with a performance for better than other desiccants. Less well known, however, is their ability to store chemicals to be displaced under conditions and at a time that can be controlled. The booklet explains how chemicals are stored in Linde Molecular Sieves, indicates the various established uses of this ability and the sorts of chemicals that can be loaded, outlines a typical case history and shows how extremely volatile ditertiary butyl peroxide was loaded to advantage as a catalyst in the manufacture of vinyl-containing silicone rubber.



## **PRODUCTS & IDEAS**



#### LABORATORY OVEN-1

A totally new design in the oven line of Despatch Oven Co. includes: improved shape and sizes for industrial laboratory use, more efficient direction of air flow in the work chamber, accurate temperature control throughout work chamber and new safety controls to enlarge its usefulness in laboratories, it is claimed by the manufacturer. The oven is electric heated. It can also be adapted to use steam or hot water at available pressures. Two swinging doors provide an oven aperture 37" x 37" for easy fast-loading. A heavy duty observation glass window is inserted in one door. Safety features include: a special explosion relief panel in back, safety latches and safety chain on swinging doors; also contactors, motor starters, main controllers and Hi-Limit instruments are enclosed in explosionproof housings, explosion-proof motors and strip heaters with welded connections to reduce spark hazards.



#### LABELER—2

Autorex high speed labeler, a new semi-automatic machine developed by Rawsons Ltd., Kent England, is now being introduced in this country by the Potdevin Machine Co. Engineered to label a variety of packages and products, the new machines are particularly adaptable to irregularly shaped, normally difficult to label bottles, vials, collapsible tubes, tool handles, paper packets and aerosols. The adhesive model shown is capable of labeling speeds of from 1,200 to 2,000 labels an hour. Produced in conventional adhesive and heat seal models, Autorex machines label a broad range of glass, metal, plastic, cardboard and fibre contrainers.

## CHROMATOGRAPHIC INSTRUMENT

The Labline Chromatofuge has been further improved, according to the manufacturer. It delivers proteins, selected dyes, etc. in only 15 to 20 minutes instead of several hours formerly needed with classical methods, it was stated. Multiple separations may be run simultaneously, and the speed with which resolutions are now secured lessens the need for temperature control. The marked reduction in time also eliminates many of the difficulties normally associated with this technique.

#### NOZZLE-4

The 1190 automatic shut-off chemical nozzle is now available from OPW-Jordan. The stainless steel and aluminum nozzle is used for chemical handling wherever bronze is objectionable. Shuts-off automatically when drum, barrel or tank is full. Balanced design for easy handling, hold-open notches free operator for other work. It is permanent, self-adjusting packing; tamper proof and leak proof without adjustment, according to OPW-Jordan.

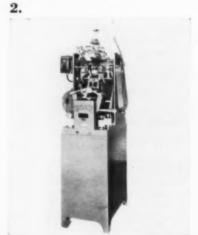
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#### BOTTLE BREAKER—3

Rescor announces a new large size bottle breaker Model No. 1000, which they claim will break a tiny vial or a gallon jug. The body is made of Tenzaloy #356, otherwise known as "Z" metal. The impeller which is the part that gets the toughtest usage is made of Manganese Moly Type Steel. This model is shipped with a 55-gallon steel drum, but has its own adapter for use on a No. 2 Can. The motor is completely enclosed with automatic overload protection.



American Perfumer & Aromatics

## The Different Propellants\*

BY DIPL. ING. WERNER LESSENICH

The most important component for the performance of a pressurized package is the propellant gas, and therefore it is worth while to evaluate all the characteristic properties of its different gases before the choice for the planned pressurised product is made.

The indispensable properties of the propellants are:

a. compatibility between the propellant and the active ingredients

b, absence of corrosive action on all the materials of the container and the valve

c. absence of toxicity and of irritation d. non-flammability and absence of any risk of explosion.

Unfortunately the two latter requirements are not taken serious enough sometimes, thus impeding the safety for economic reasons more often than commerce and consumer might know.

The propellants are quite different in some of their chemical and physical properties. Therefore these features should be coordinated with the requirements of the different products and with the proper form of application. The dispensing of a product through the valve of a pressurized package may be classified after the mode of application:

1/ in a ribbon of paste

2/ in droplets

3/ in a liquid stream (non-aerated)

4/ as a foam

5/ as a coarse spray

6/ as a moist spray (surface coating) 7/ as a fine, dry mist, true aerosol (incl. powder and snow).

The first three classes need a propellant that will not dissolve in the active product, while the last two classes request a sufficient quantity of propellant dissolved in the product, in order to produce an atomization of adequate fineness. The two classes in between (foam and coarse spray) can be accomplished with such propellants that have a limited solubility or even with a non-soluble propellant when utilizing a spray head with a mechanical brake-up device.

The propellants can be distinguished in two principal groups:

a. compressed gases

Introduction to a colleguy, read at the Conference International des Arts Chimiques, INTERNATIONAL SYMPOSIUM ON AEROSOLS

June 26th 1959, Maison de la Chimie, 28, rue St-Dominique, PARIS 7° (Seine) b. liquefied gases

The compressed gases generally are non soluble or have definitly a limited solubility. These propellants cannot be liquefied under the pressures that can be realized in metal or plastic containers and in glass bottles. So they exist only in gaseous phase in the upper part on the container. There is scarcely any variation of the pressure exercised on the product with the change of temperature, but the pressure decreases according to the progressive ejection of the product. This diminution of the initial pressure to one third or even further is rather an inconvenience and sometimes a disadvantage which has its influence on the performance.

The decrease of pressure is not so servere with the propellants of limited solubility, as the dissolved part acts as a small reserve of propellant released partially by the lowering of the pressure.

Nitrogen and the rare gases are essentially non-soluble, except traces. Carbon dioxyde (CO<sub>2</sub>) and nitric oxyde (N<sub>2</sub>O) and their mixtures have a limited solubility, that varies somewhat with different liquids.

The quantity of compressed gas necessary to fill a pressurized package is so small that it costs nearly nothing, however, such a system is very delicate as far as losses of the propellant charge either by leakage or by a faulty handling of the package are frequent. If the container is held upside down or has been inclined too much nearly the total propellant charge will escape when the valve is actuated.

#### **Liquefied Propellants**

The second group represents those propellants that can be liquefied under pressures adequate for the containers utilized. The most important liquefied propellants are the fluorinated chlorohydrocarbons, wellknown under their trade marks Freon, Frigen, Arcton, CF-Electro, Algofrene, Flugène, etc.

The liquid phase of the propellant serves as a nearly inexhaustible reserve, and the saturated vapor maintains a constant pressure during the ejection until the last droplet has been used. The pressure varies rather with the temperature, but this is in most of the cases an inconvenience of lower concern.

The solubility of the active ingredients in the liquid phase of the propellant—if necessary with the aid of a cosolvent—is the requirement for the atomization into fine particles, which is effected by the instantaneous vaporisation of the propellant on leaving the valve orifice. It is absolutely impossible to get the same results with a compressed gas or with a liquefied gas that does not dissolve the active ingredients because the mechanical devices to break up a liquid stream are not effective enough within the range of pressures for our containers.

If the liquefied propellant and the active ingredients are not miscible a phase system will be formed, i.e. two separate liquid phases and as the third the vapor phase of the propellant. Such a system can be applied for the dispensation of liquids by droplets or in a stream or for a very coarse spray using a mechanical break-up actuator.

Moreover only the liquefied propellants are suitable for the spraying of solid matter, as powders (suspended in the liquid propellants) and snow (dissolved in the liquid propellant).

Some hydrocarbons like propane and the butanes and other flammable gases like vinyl chloride and sometimes even dimethylether are used as propellants, because their prices seem to be very interesting. However, their flammability and explosion hazards certainly do require some restrictions in their application. One must consider the hazards of the flammable and explosive gases not only for the filling plant or for the unsuspecting consumer, but also for the warehousing and the transports. The International Regulations for the transport of dangerous merchandise (RID) and some national regulations impose restrictions on aerosols filled with flammable, toxic and irritating gases. From this category of gases the vinyl chloride seems to be one of the minor hazards as far as flammability is concerned. But its physiological behaviour and its odor being more pronounced than those of the fluorinated propellants has to be taken into consideration. Moreover, the vinyl chloride has the advantage of a remarkable dissolving power.

It is possible to use the flammable gases to blend the fluorinated propellants, with regard to the saving of costs. Mixtures of 25% of hydrocarbons with 75% of fluorinated propellants are generally not yet flammable.



#### **TGA Announces Scientific Section Meeting**

The Toilet Goods Association will hold the winter meeting of its Scientific Section on Tuesday, December 1, in the Sert Room of the Waldorf-Astoria Hotel, New York. The meeting will begin at 9:30 AM with luncheon at 12:30 in the Empire Room. As is customary, non-member companies are not eligible to attend.

Papers to be presented at this meeting include: "The Synthesis and properties of Mercaptans Having Different Degrees of Acidity of the Sulfhydryl" by J. W. Haefele, R. W. Broge and W. L. Courchene, of Procter & Gamble: "Instrumental Evaluation of Citronella Oils and Palmurosa Oil-Geraniol Citronellol and other Constituents" by James A. Rogers, Jr., Director, Instrumental Laboratories, Fritzsche Brothers; and "Panthenol in Cosmetics" by S. H. Rubin and L. Magid, of Hoffman-LaRoche.

Other papers include "The Objective Meassurement of Odor. III. Breath Odor and Deodorization" by Donald A. N. Mackay and Murray Berdick, of Evans Research & Development Corporation, and David A. Lang, of American Chicle Co.; "Recent Advances in Instrumental Examination of Fragance Materials" by Ernst R. Theimer of Van Ameringen-Haebler, "Method for Protecting Peroxide Bleached Human Hair" by Peter Bleached Human Hair" Flesch of the Department of Dermatology, University Hospital, University of Pennsylvania; and "Methionine in Cosmetics and Pharmaceuticals" by H. J. Prebluda of U.S. Industrial Chemicals Company and Irwin I. Lubowe, of Metropolitan Hospital Center of New York Medical College.

#### **Cosmetic Packaging** Will Increase

The cosmetic industry will be responsible for a surge of orders for packaging machinery and related materials, forecasted companies exhibiting

in the Packaging Machinery Manufacturers Institute Show to be held in New York in November. Some 155 exhibitors were asked-during the next 12 months, which industries do you believe will surge more rapidly in buying the machinery or materials you produce? Most often named were the pharmaceutical, frozen food and cosmetic industries, according to Hanson & Shea, Inc., Pittsburgh, managers of the show.

#### **Dewell Named Chairman**

Wilbur E. Dewell has been named general chairman of the Joint Defense Appeal, Drugs and Cosmetics Division, it was announced by Andrew Goodman, JDA general campaign chairman.

Mr. Dewell is principal consultant for Lanolin Plus and for thirty-five years was an officer with McKesson & Robbins, Inc.

Joint Defense Appeal is the fundraising arm of the American Jewish Committee and the Anti-Defamation League of B'nai B'rith, the nation's oldest and largest human relations agencies.

#### **Rutgers Announces Perfumery Courses**

Rutgers University Extension Division, Newark, New Jersey announces two new courses in perfumery and essential oils starting September 21 and 22.

"Chemistry of Perfumer Materials" is a lecture course open to students with formal training in organic chemistry. Some of the topics covered will be: C10 hydrocarbons-structures, synthesis, conversion to other perfumery materials; alcohols and aldehydesboth natural and synthetic including present methods of manufacture, im-

#### CORRECTION

CORRECTION

A serious emission was made in the last issue of American Perfumer & Aromatics. It should be noted that the article by Paul G. I. Lauffer entitled "Olfaction and Cholinesterae," was reprinted from the Proceedings of the Scientific Section of the Toillet Goods Association, No. 31, May 1959.

portant properties, analytical methods, chemical reactions; ketones; musksartificial and natural, reactions, properties, synthesis etc.; compounds to be covered individually are: anthranilates indole and its homologs, some lactones and many esters; modern analytical methods will be discussed with emphasis on the application of each method.

"Advanced Perfumery and Essential Oils" is a lecture and laboratory course for people with prior training and experience in the field. Through the use of lectures, demonstrations and experiments the students will be acquainted with a number of perfumery materials and their effect and application in the world today. The aspects of supply, cost, purchasing and shipping of these materials will be discussed. Emphasis will be placed on the basic creation, technique of creation and considerations to the end-use of perfumes. Guest lecturers will deliver material in the area of their specialty.

The first course will be taught by Dr. Donald Denney, Associate Professor of Chemistry, Rutgers -The State University, New Brunswick, New Jersey. The second will be taught by Mr. Steffen Arctander, Perfumer, van Ameringen-Haebler, Inc., New York.

#### **New Line for Men**

William B. Nassour, founder and former president of Courtley's Ltd., has announced the formation of Royalty Cie, a complete new prestige line of fine men's toiletries to be marketed under the name "Royalty".

The result of nine years of research by the Nassour staff in the United States and in Europe, developing and blending special oils and essences, the nine Royalty products will emphasize fine packaging and a new concept in the gift field, according to the manufacturer.

#### Philadelphia College **Plans New Lab**

Plans have been completed and building contracts awarded by the Philadelphia College of Pharmacy and Science for the construction of a pharmacology laboratory wing, Dr. Ivor Griffith, President of the College, has announced.

To be known as the C. Mahlon Kline Pharmacology Laboratory, this modern teaching facility will adjoin and augment the LaWall Memorial Laboratory of Pharmacology and Biochemistry so that, in addition to the present graduate teaching and research quarters, undergraduate pharmacological experiments may be performed by classes numbering up to 50 at a time.

Both laboratories will be under the direction of Dr. G. Victor Rossi.

#### Bartlett & Snow Acquires New Line

The C. O. Bartlett & Snow Company, Cleveland, has acquired the entire Wettlaufer line of vibrating screens, packing units, blender mixers, granulators and centrifuges. The line was developed by William L. Wettlaufer, Buffalo inventor and authority on screening.

With this addition to its line of products, Bartlett-Snow plans to provide equipment for drying, calcining, reducing, screening, mixing and conditioning an extremely wide range of materials. Both production equipment and laboratory size units for research or pilot-plant work are included. The Wettlaufer equipment embodies new principles developed specifically to solve processing problems.

#### New Contract Packaging Co.

Packaging Services Inc., a newly formed company, has opened offices and a fully equipped plant in Wilmington, Delaware. According to A. J. Gordon, President, it is geared to handle any type of flexible film packaging for such products as liquids, powders and tablets required by the chemical, pharmaceutical and cosmetics industries, as well as for other diversified items from foods to hardware. The new firm is headed by Mr. Gordon, formerly of Gordon Chemicals, Inc., Wilmington, and A. Jacobs, package machinery designer.

#### **Show in Denver**

A Market Development Show devoted to drugs, toys, novelties, specialty gifts and toilet goods opened August 2 for five days at the Cosmopolitan Hotel in Denver.

The show, part of the "Marketmonth" series, was sponsored by Denver Markets, Inc., affiliated with the Denver Chamber of Commerce.

#### Scented Goods Sweetened Shanghai

The New China News Agency reports that scented pencils, parasols, hairpins and cloth have become popular on the Shanghai market.

The scents cling even after clothing is washed several times, the report said.

#### Shulton Enters Hair Coloring Field

George L. Schultz, President of Shulton, Inc., announces the acquisition of Tecnique, Inc., a midwest manufacturer and distributor of hair coloring products, presently located in Minneapolis, Minn.

Mr. Sig Pass, who as head of Tecnique originally developed Tecnique Color-Tone, a hair color cosmetic, will continue his present duties as President of Tecnique, Inc., subsidiary of Shulton, Inc.

The transaction was an outright purchase for cash. There was no disclosure of the amount involved or of the Tecnique sales figures. Tecnique Color-Tone is distributed nationally in most key markets. The products are sold at retail in department stores, independent and chain drug stores, and are distributed for professional use in beauty salons.

Mr. Schultz advised that Tecnique will continue in the same successful pattern which it has been following, amplified extensively by the research, manufacturing, marketing, packaging and sales facilities of the Shulton organization.

#### British Executives Tour Aerosol Techniques

Lord Kirkwood of Beardsen, director of Imperial Smelting Corporation, Ltd., of London, accompanied by his company's chemical sales head, W. J. Carter, got a close-up view of the U.S. aerosol industry when they visited the plant of Aerosol Techniques, Inc., at Bridgeport, Conn. Imperial Smelting supplies Isceon aerosol propellant to Midland Aerosols, Ltd., with which Aerosol Techniques is associated in Great Britain.

The two British executives were the guests of H. R. Shepherd, president of ATI, who conducted them on a tour of his company's pressure-packaging and laboratory facilities and subsequently showed them high points of Bridgeport.

#### Monsanto Announces Tetrapotassium Pyrophosphate

Monsanto Chemical Company's Inorganic Chemicals Division has announced a new low-turbidity tetrapotassium pyrophosphate which makes it possible for manufacturers of general purpose liquid detergents to formulate clear, cloudless products for retail and industrial uses. This high assay tetrapotassium pyrophosphate assures manufacturers of liquid detergents a minimum of potassium tri-polyphosphate and other trace impurities which cause unsightly cloudiness in finished products, Monsanto said.

Commercial quantities are now available, the company announced.

#### Sugar-Based Detergents Get Patent

The Sugar Research Foundation, Inc., announced that it has been granted a U.S. patent on a process for making sugar-based detergents and emulsifiers. Essentially, it explained, the process consists of linking a molecule of sugar, which is highly soluble in water, to an insoluble molecule of animal or vegetable fat.

Patents on the process, the Foundation said, have been issued by 19 foreign countries, and there are ten licensees. The products, the Foundation noted, are bland in taste, pale in color, and odor-free.

The Foundation is a non-profit corporation formed in 1943 to study the uses of sugar, both as a food and as a chemical raw material. Its work is carried out largely through grants to universities, colleges, and commercial laboratories. The current program involves studies in food technology, industrial non-food processes, and public health. Members of the Foundation are sugar producers in the U.S. and 13 foreign countries.

#### **D&O 161st Anniversary**

Dodge & Olcott, Inc., the oldest company in America specializing in the manufacturing and merchandising of essential oils, aromatic chemicals, oleoresins, seasonings, flavors and perfume bases, celebrates this October its 161st anniversary.

#### **Knox Glass Gains**

Net sales of Knox Glass, Inc., one of the nation's leading manufacturers of glass containers, amounted to \$11,-251,761 for the quarter ended June 30. Sales increased \$1,494,429 or 15% over the same period in 1958.

Income after taxes for the quarter was \$414,976, a gain of \$93,840 or 29% over the like 1958 quarter.

For the first nine months of the company's fiscal year, commencing last October 1, net sales were \$29,653,351. This figure represents an increase of 12%, or \$3,082,101 over the previous record sales of \$26,571,250 reported last year.



William Russell, Display Manager, Demery's Inc., Detroit, receiving \$1000 First Prize Award in the Old Spice Father's Day Display Contest sponsored by Shulton, Inc. Left to right: James Luse, Shulton Sales Representative; Mr. Russell; Charles A. Peck, President, Demery's Inc.

## Display Contest Winners



Right, \$1000 first prize winner the display contest.

Category 1—Department Stores—cities of 220,000 or more. Display was at Demery & Company, Detroit, Michigan.



Left, \$1000 first prize winner, Category 2—Department Stores—cities of less than 220,000. Display was at The Killian Company, Cedar Rapids, Iowa. Lower left: \$1000 first prize winner, Category 3—Chain Drug Stores—Lane Rexall Drug, Little Rock, Arkansas. Below: \$1000 first prize winner Category 4—Independent Drug Stores—Barnhart Pharmacy, Churubusco, Indiana.



#### **New Building for Clintwood**

Clintwood Chemical Company has acquired a new building with 25,000 square feet of space at 4342 South Wolcott Avenue on the southwest side of Chicago for the manufacture of surfactants and fine chemicals for the cosmetic industry. Glass lined reactors are being installed and production began September 1.

Facilities include indoor storage tanks to handle tank car shipments of raw materials and an elevated temperature room for melting drum quantities of solid materials which are more easily handled as liquids.

Clintwood Chemical Company has been manufacturing alkanolamides and polyoxyethylene esters for use in shampoos, hair rinses, wave neutralizers, bubble bath and cosmetic creams since 1950. The company plans to expand the number of its products in this field under the trade name SANDROL. In order to achieve this goal a well equipped customer service and applications laboratory for developing formulas in the cosmetic field, will be located on the premises. In addition Clintwood Chemical Company plans to manufacture fine organic chemicals on a custom basis.

#### "Gifts" Prove Costly

"Economy-sized" packages which aren't economical have raised the ire of some consumers, the annual meeting of the Manitoba branch of the Canadian Association of Consumers was told.

Consumers had complained that the large-size carton of some items costs more than the small. Other packaging complaints: awkward size of some packages on household shelves, difficulty in evaluating prices because of different size packages, and enclosure of "money off" deals and so-called gifts.

"We did an investigation recently on a king-size carton of detergent and found the gift cost approximately 75 cents" a member complained.

#### Chemical Industries Featured at Coliseum

New developments in continuous process analysis and control will be one of the strong features of the 27th Exposition of Chemical Industries, to be held at the New York Coliseum, November 30 to December 4.

Exhibits of new instruments and control will form one segment of a display which includes the basic chemical materials, inert substances, rare, as well as common metals, and the ever growing list of man-made structurals and intermediates—glass, ceramics, plastics and combinations of synthetics with natural materials.

Research instruments will be seen in considerable numbers, some of extreme accuracy. The largest amount of space in the Exposition will be occupied by displays of productive equipment. This will cover many categories representing the process stages involved in preparing and combining raw materials into finished products.

#### **Risdon Names Agency**

Smith Sales Company, a manufacturer's representative and development engineering firm with headquarters in Los Angeles, California, has been appointed Western sales agency for the Aerosol, Cosmetic and Metal Goods Division of the Risdon Manufacturing Co. Smith Sales will be the sales and service liaison between Risdon and cosmetic and pharmaceutical manufacturers in California, Arizona, and Nevada.

#### Folding Carton Shipments Up

Despite a seasonal slow-down, shipments of folding cartons during the past month set a new high for any July on record, the Folding Paper Box Association of America announces.

Dollar volume in July topped year ago shipments by 3.3% and tonnage was up .7% over last year. The total for the year is now 4% ahead of the first seven months of last year in dollar volume and 3.2% ahead of 1958 in tonnage. The Pacific coast led the rest of the country in



both dollar volume and tonnage during the month, with the former up 9.4% over 1958 and tonnage up 12.5%.

#### **Cosmetic Course Offered**

A course in cosmetics and perfumery will be offered by the Greenwich Board of Education at the Greenwich High School, Greenwich, Connecticut, according to Carl Pickering, Head of Adult Education.

The course will include creams, lipsticks, make-up, powders, deoderants, aerosols, colognes, perfumes, selling hints etc. It is intended to aid those in the beauty cultiure field and those working or seeking positions in the retail stores selling cosmetics and perfumes.

Classes will begin September 23 and will meet each Wednesday from 7:30 to 9:30 P. M. A certificate will be awarded.

Frank J. Steele, Sc.D., Chief Pharmacist at the Greenwich Hospital, will be the instructor,

#### **Procter & Gamble Sales Up**

The Proctor & Gamble Company today reported that sales and earnings for the fiscal year which ended June 30 were the largest in its 122-year history.

Consolidated net sales of the company and its subsidiaries totaled \$1,368,532,-426. Sales in the previous year were \$1,295,163,269.

Consolidated net earnings for 1958-59 increased 11.6 percent to \$81,697,965, equal to \$3.96 per share of common stock. Comparable figures for the previous year were \$73,196,618 in earnings which was \$3.56 per share.

#### **Emery Expands**

A \$6,000,000 plant expansion project has been announced by Emery Industries, Inc. New construction at the firm's Cincinnati plant will increase several fold the existing capacity for production of azelaic and pelargonic acids from oleic acid by ozone oxidation.

The present plant, completed five years ago, is the world's only installation for commercial oxidation by ozonalysis.

John J. Emery, President, said the expansion move results from a substantial broadening of the utility of azelaic and pelargonic acids and their derivatives. The expansion program includes also plans to increase several fold exterification capacity for Emery's line of Plastolein Plasticizers, and Emolein diesters for iet engine lubricants.

#### Indian Symposium Announced

A symposium on "Recent advances in the fields of oils, fats, and allied products" under the joint auspices of the Council of Scientific and Industrial Research, Indian Central Oilseeds Committee, and Oil Technologists' Association of India will be held at the Harcourt Butler Technological Institute, Kanpur, October 25-27, 1959.

The symposium will be divided into several sessions which will discuss the various aspects of oils, fats and allied products. An exhibition depicting the advances made in these fields will be arranged. Excursions to places of industrial and historical interest will also be included in the program.

#### Cosmetic Ads Up in Journal

The Ladies' Home Journal reports that cosmetic and beauty aids advertising revenue for the first six months of 1959 totals \$1,790,547, an increase of 95.5% over the \$916,105 total for the same period a year ago. This represents the largest cosmetic and beauty aids advertising investment in any monthly or weekly magazine for the six months period of 1959.

#### Max Factor Earnings Up

Earnings of Max Factor & Co. for the first half of 1959 rose 77 percent on a sales increase of 16 per cent over the like period a year ago, Max Factor, Jr., president, announced today.

Earnings for the six months ended June 30, 1959 amounted to \$1,770,121, equal to 84 cents a share on the 2,115,500 shares of Class A and common stock outstanding. This compares with \$1,004,408, equal to 47 cents a share on the same number of shares outstanding at June 30, 1958.

Net sales for the first half were \$24,-453,676, up from \$21,066,511 for the corresponding period last year, an increase of \$3,387,165.

## Levallen to Address Pharmacists

Dr. E. E. Leuallen, Dean of Columbia College of Pharmacy of the City of New York, will be the speaker for the first fall meeting of the Society of Pharmacists in Industry. The meeting will be held on Wednesday, September 16. at the Academy of Science, 2 East 63rd St. Dr. Leuallen's subject will be "Through the Paddy Fields with a Pharmacist."

#### **Hazel Bishop Moves**

Hazel Bishop, Inc., has consolidated all activities in a newly-constructed building in Lodi, New Jersey, announced Robert G. Urban, president of the company. The move was completed on September 1.

Production and shipping were formerly at Paramus, New Jersey, while billing and other activities were located on three floors of 445 Park Avenue, New York. Executive offices of the company will remain at the Park Avenue address.

#### **Rexall Earnings Up**

Justin Dart, president of Rexall Drug and Chemical Company, announces that the consolidated net earnings for the six months ended June 30, 1959, after provision of \$3,180,000 for Federal income taxes, were \$3,253,870, equivalent to \$0.90 per share, based on 3,604,488 shares of capital stock, the average number of shares outstanding during the period. This compares with net earnings for the first half of 1958 of \$1,937,751, after provision of \$1,665,000 for Federal income taxes, equivalent to \$0.60 per share, based on 3,216,849 shares of capital stock outstanding at June 30, 1958.

Consolidated net sales for the six months were \$97,743,553, as compared with \$78,854,708 for the same period in 1958.

#### **TGA sets Convention Dates**

The Toilet Goods Association, Inc. has arranged plans for a joint convention with the Toilet Goods Manufacturers' Association of Canada. This project has been under consideration for several

#### IRIS D. F.

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#### LILAC ISOFLOR

An outstanding synthesis of the Lilac perfume. A perfect duplication of the purple Lilac odor.



years and for 1962, complete accord has been reached. The convention will be held at the Chateau Frontenac, Quebec, June 24 to June 29, 1962,

A joint committee consisting of members of the Canadian Association and the American Association is in process of being organized. In accordance with the policy of the Association conventions are held away from New York in even number years. In 1960 the Annual Convention will be held at the Poland Spring House, Poland Spring, Maine, and committees for that event will be announced in the near future. The convention in 1961 will, of course, be held in New York in accordance with the policy of the Association.

## Cosmetic Chemists Plan Dinner

The New York Chapter of the Society of Cosmetic Chemists will reconvene for the first meeting of the fall season at the Hotel New Yorker, on September 9, 1959. Mr. Francis Chilson, an industrial consultant and author of the "Management Forum" of *Drug and Cosmetic Industry*, will address the meeting. The title of his talk will be "Production Progress in the Cosmetic Industry."

Reservations for cocktails and dinner should be made with Dr. Saul Bell, Secretary, 60 West St., Bloomfield, New Jersey. There is no charge for the meeting which usually begins about 8 P.M. Members of the Society, their guests and all others interested in cosmetic chemistry are welcome.

#### Salesmen Mileage Payments Increase

The cost of keeping a drug or cosmetic salesman on the road in an automobile has reached an all-time high.

Mileage' payments to drug and cosmetic industry salesmen driving their own cars on company business reached a national average of 8.87 cents per mile this year, the closest they have inched to the 9-cent mark. National average for all industries is 8.91 cents, also a record high.

This represents a jump from a year ago, when the national average was 8.22 cents per mile. It is an increase of 15 per cent over 1957, when the national average was 7.72 cents per mile.

This was disclosed by A. J. Schoen, president of Wheels, Inc., Chicago, one of the nation's largest auto fleet leasing firms. Wheel's survey represents reports from 327 companies operating national, regional, and local auto fleets, ranging in size from 25 to 1,000 cars. Companies paying a flat mileage rate and those paying rates on a sliding scale based on territory were both included.

According to Schoen, this year's jump in mileage payments to salesmen is a reflection both of increased costs and the nation's economic recovery. Mileage payments, which tended to hold steady during the recession of 1957-58, are now overcoming their temporary lag, as companies strive to hold the salesmen they have and add to their sales force.

#### **Cosmetic Prize Awarded**

Louis Schmuck, Secretary-General of the French Society of Cosmetology, has been awarded the 1959 Prix International d'Esthetique et de Cosmetologie "Giuliana Brambilla." The prize, set up by the Laserson and Sabetay Companies of La Garenne-Colombes, aims to recognize the creative and unselfish research of cosmetic chemists and beauticians.

During his ten years as Secretary-General of the Society, and forty years in the cosmetic industry, M. Schmuck has contributed greatly to international cooperation between cosmetologists.

The prize has previously been awarded to M. Georges Dumont of Brussels, and to Dr. Rovesti, of Milan.

#### **New Plant in Grasse**

The firm "LA MARIGARDE" has recently finished a new plant in Grasse. The production program includes the manufacturing of Floral Absolutes, Floral Essences and resinoids. The plant is equipped with the latest modern distillation units and research laboratories.

In another production department, isolates such as alcohols, esters and other aromatic specialties are produced.

Most leading essential oils are distilled and rectified or extracted from French and imported woods, roots, seeds, leaves, gums and plants.

Mr. Julien Fenasse, who is a chemical expert and a graduated engineer, and his experienced staff are in charge of production and research. The commercial manager, Mr. A. Gobert, is well known for his achievements in the essential oils trade of this plant.

#### **Aerosol Clinic Planned**

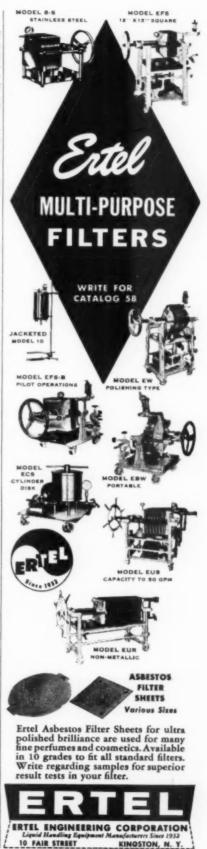
The first educational technical clinic to be conducted for members of the fast-growing aerosol industry will be sponsored by the Aerosol Division of the Chemical Specialties Manufacturers Association this coming October in two aerosol filling centers, New York and Chicago.

According to E. J. McKernan, Chairman of the CSMA Aerosol Division, the objective of the clinic is to provide the aerosol industry, especially junior level management, operators and technicians, with basic and up-to-date technical information on pressure filling operations.

The program is expected also to be of interest to companies which are thinking of entering the aerosol field, either as fillers, marketers or consultants, as well as to students at colleges and universities interested in aerosol packaging.

Each clinic will last one day and will run from 9 to 5. It will cover the history and growth of the aerosol industry, aerosol principles, propellants, containers, valves, laboratory equipment and techniques, formulation problems, and commercial filling methods and its problems.

Dr. Frank Mina, of Lodes Aerosol Consultants, will discuss aerosol principles. Mr. Lloyd Flanner, head of the aerosol technical service laboratory of Allied Chemical's General Chemical



Division, will review propellants. Mr. Walter Beard, Manager of the Valve Division, Risdon Manufacturing Company, will speak on valves. John Buchanan, Chief of the aerosol development section, Continental Can Company, will discuss the subject of containers.

The subjects of formulation problems and commercial filling methods and problems will be discussed by panels of experts from the technical staffs of contract-fillers and marketer-fillers in the East and Midwest. Their names and those of other key speakers will be announced in the near future.

The New York program is scheduled for Saturday, October 17th, at the Hotel McAlpin. The Chicago program will be the following Saturday, October 24th, at the La Salle Hotel.

The clinics are being arranged by the CSMA Aerosol Division Program Committee under the direction of its chairman, J. J. Tomlinson, General Chemical Division, Allied Chemical Corporation. A special sub-committee headed by A. H. Lawrence, Jr., of E. I. duPont de Nemours and Company, Incorporated, is responsible for the speakers' schedules and other details.

Copies of papers and discussions will not be available for purchase after the meeting. A nominal registration fee will be required of those attending.

#### Theimer Addresses Chicago SCC

Speaking on Instrumental Analysis

before the Chicago Chapter of the Society of Cosmetic Chemists recently, Dr. Ernst T. Theimer, Director of Research for the van Ameringen-Haebler Division of International Flavors & Fragrances Inc., stressed some of the achievements in research resulting from new developments and advances in this field.

Dr. Theimer noted the simplicity and accuracy of the quantitative analysis of mixtures when using infrared and gas chomatographic techniques. In particular, mixtures of terpene alcohols containing citronellol, geraniol, nerol and dimethyl octanol, and mixtures of the methyl ionone isomers containing also minor impurities are easily assaved. Gas discussed chromatography was with emphasis on recent developments in high resolution capillary columns and ionization-type detectors. The results achieved with these new instruments were shown to be greatly superior to the conventional types of columns and detectors.

Also discussed by Dr. Theimer were the techniques of utilizing near and far infrared as well as mass spectral analysis, which in conjunction with VPC separation gives insight into the structure of molecules, using very small samples and in a very short period of time.

Looking to the future of Instrumental Analysis, the speaker covered data presently available on high resolution nuclear magnetic resonance. This technique, while requiring expensive and complicated equipment, may very well be the method of the future, because of the tremendous amount of information it gives on the number and the chemical

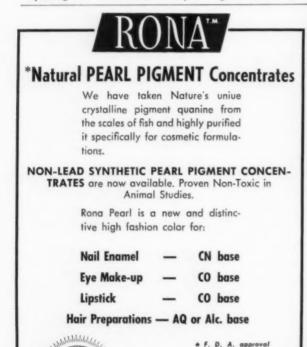
environment of hydrogen atoms in molecules. It was shown, for example, that a complete analysis of the structure of relatively simple molecules such as lower aliphatic alcohols could be made by nuclear magnetic resonance. Without this technique, it would be impossible to "see" the relationship of the various hydrogen atoms contained in a chemical compound.

#### **British Exhibit Toilet Goods**

The biggest and most complete display of the British toilet preparations industry ever shown in the United States will be part of a 17-day British Exhibition of industry, technology, science and culture in the New York Coliseum next June 10 to 26. The Federation of British Industries is sponsoring the event with the backing and support of the British Government.

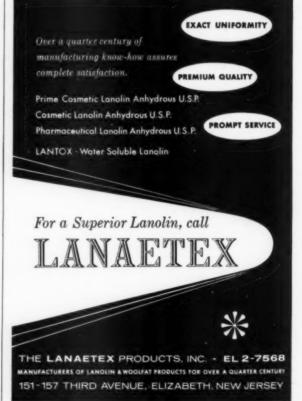
D. A. Lamb, general manager of the exhibition, said the displays will show "all that is best and most advanced in British industrial products—both consumer and capital goods." He said the display of toilet preparations for men and women will be one of the most extensive in the Coliseum with leading firms in the fields showing their finest lines of perfumes, facial preparations and other cosmetics and toilet articles.

Lamb said the wide array of exhibits will give the American public a chance to know Britain better and offers the American buyer the opportunity to see for himself the enormous range of goods that Britain can provide.



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Plants: Maine—New Jersey—Canada







Wend Wendenburg

Wend Wendenburg has been appointed sales manager of the newly reorganized sales department of Centrico, Inc. Mr. Wendenburg has been connected with the Centrico organization for five years, serving as sales engineer in the food processing field throughout the United States and Canada.

John H. Hickling has been named manager-Latin American Administration, a newly formed position at Shulton, Inc. He will coordinate the activities of Shulton's wholly-owned subsidiaries in Latin America and help to promote the exchange of ideas among them. Mr. Hickling joined Shulton in 1956 as assistant to the sales manager of the International Division, and since 1958 has been advertising coordinator for the Division.

Grant V. Hoyt has joined the Mojonnier Associates Division of Kartridg-Pak Machine Co. as service manager and assistant to the general manager. He will be responsible for coordinating engineering, production and service departments. William Prena has joined the engineering staff as a product engineer. He has been chief engineer with aerosol research for two years.

Gert Keller of Schimmel & Co. has accepted the appointment as chairman of the essential oils & extracts division of Travelers Aid Society of New York's fifty-fourth Annual Fund Drive. More than 300 key civic and business leaders in the New York area are participating in the drive for funds which begins September 14.

Parker McKinley Bitner, a veteran with twenty-seven years of experience in the glass container manufacturing industry, has been named plant manager of the Knox, Pennsylvania, plant of Knox Glass, Inc. Robert E. Brouillard has been made sales manager-pigments, and H. Alison Webb has been appointed sales manager-dyestuffs, in the Dyestuff and Chemical Division of General Aniline & Film Corporation. Mr. Brouillard has been with GAF since 1958, Mr. Webb since 1935.



Kay Colton

Miss Kay Colton, manager of cosmetic sales, Morningstar-Paisley, Inc., left on August 4 for a month-long visit to seven European countries in search of new ideas in European cosmetics. Miss Colton also hopes to bring back to the U.S. ideas for new non-hormone nourishment additives and rejuvenation materials.



Maurice A. Meunier

Maurice A. Meunier has been named vice president of Dana Company. He has been with the company since 1942 as chief chemist. Mr. Meunier was born in Paris and educated at the Sorbonne. He came to the U. S. in 1925. His long association with the fragrance industry includes twelve years as chief perfumer for the Colgate Company.



Russel J. Hahn

Russel J. Hahn has been named sales engineer for the R. T. Vanderbilt Company, Specialities Department. Mr. Hahn will service Vanderbilt accounts in the middle-Atlantic states, from Maryland north, including eastern Pennsylvania. He will cover all New England and the Province of Quebec.

Robert F. Heflin has been appointed assistant controller of the Century Chemical Corporation.

Walter P. Kuenstler has been appointed director of marketing research for the consumer product divisions of Warner-Lambert Pharmaceutical Company. Mr. Kuenstler was previously marketing research associate with the General Foods Corp. He will direct marketing research for the Hudnut-DuBarry, Warner Lambert Products, Standard Laboratories and Parfums Ciro divisions of the company.

Theodore S. Hodgins, president of Century Chemical Corporation, George T. Bayley, chairman of the board of Calkin & Bayley, Inc., and Charles W. B. Wardell, Jr., vice-president of Deltec Corporation, have just been elected as an executive committee of Century Chemical Corporation by the company's board of directors. William M. Healey has been appointed controller of Century. He was formerly with the accounting firm of Arthur Andersen and Company.

E. W. "Stace" Carey, vice president—marketing of Fibreboard Paper Products Corporation has been elected a member of the board of directors. Mr. Carey has been vice president—marketing since January. He came to Fibreboard as vice presdient—administration in 1957. H. C. "Buzz" Hamlin, Jr., will succeed retiring sales manager C. A. Morgan in the Northern Packaging Division of Fibreboard. His headquarters will be in Seattle.

R. George Hart'g and James D. Thaler have been named supervisors of process design and plant design respectively, for the Phosphorous Division of Hooker Chemical Corporation, with headquarters at Jefferson, Indiana. Stanley A. Mattison has been appointed Washington Manager for the corporation. He will provide direct liaison between governmental agencies and Hooker in all areas of company business. Five chemists have recently joined the research department of Hooker. They are: Dr. Frederick Leighton, investigator in organic research: Dr. James J. Hodan and Richard D. Carlson, phosphorus chemistry; Wesley F. Hoskyns, analytical; and Noel D. Blair, existing products, plastics research.

Laurel G. Parkinson, new general manager-marketing of Amoco Chemicals Corporation, has been elected a director of the company. Mr. Parkinson joined Amoco early last year as general sales manager-chemicals, coming from Lever Brothers Company in New York where he had been manager of the Industrial Chemicals Department since 1954. He has also held positions in sales, manufacturing, research and development at Atlas Powder Company.

Minot K. Milliken, vice president, treasurer and a director of Deering, Milliken & Co., Inc. and Milliken Woolens, Inc., has been elected to the executive committee of American Can Company's board of directors. Mr. Milliken has been a director of American Can since November 1956.



J. Philip Smith



Paul E. Weber

J. Philip Smith, since 1955 general manager of the Chemical Sales Division of Chas. Pfizer & Co., Inc., has been elected



Malcolm K. Nielsen

a vice president of the company and named head of Pfizer Laboratories, one of Pfizer's two ethical pharmaceutical marketing divisions. Paul E. Weber has been named to succeed him as general manager of the Chemical Sales Division and Malcolm K. Nielsen has been appointed sales manager. Mr. Smith, a director of Pfizer since 1959, has been with the company since 1933, when he joined the production staff at Pfizer's main plant at Brooklyn. He later served as an attorney in the Legal Division, as Pfizer representative in Washington D.C., and as assistant to the senior vice president.

John D. Slater, Jr., has been appointed division manager of the Jackson drug division of McKesson and Robbins, Inc. Formerly sales manager at Jackson, Mr. Slater joined the McKesson organization in 1947 as an operations trainee.





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John R. Anderson, Carl K. Fink, Samuel M. Livengood, William H. Millett, and Edward R. Weldlein, Jr. have been appointed assistant directors of the Technical Service Laboratory of Union Carbide Chemicals Company, and E. Lacy Gibson has been named administrative assistant to the director. The five assistant directors will be responsible for experimental programs and business functions of the laboratory now being built near Tarrytown, N.Y., and due for completion in late 1959 or early 1960. Mr. Gibson will co-ordinate and administer certain of the research, customer service and training functions.



G. Edmund Heine

G. Edmund Heine has been appointed New York sales representative for A. H. Wirz, Inc. He will be associated with Virgil L. Dickey, who has represented Wirz in New York City since 1957. Gerard S. Fowler has been named general manager of Hawaiian operations for the Warner-Lambert Company, Mr. Fowler was formerly executive vice-president, Family Products Division. He will coordinate the activities of representatives of the various Warner-Lambert divisions in the islands.



Carl Goldschrafe

Carl Goldschrafe has been named midwest sales representative of Fleuroma, Inc. Mr. Goldschrafe was formerly director of packaging for Helene Curtis Industries, Inc. His offices will be in Chicago.

Thomas A. Rivenbark has been named to the evaluation section, and Clarke W. Slade, Jr. has been named to the marketing research section of the newly-formed Development Appraisal Department of the Atlas Powder Company.



Louis Amaducci

Louis Amaducci has been elected vice president of the Norda Essential Oil and Chemical Company, Inc. Mr. Amaducci, a graduate of Columbia University's School of Mines, has been with Norda for the past nineteen years.

Kenneth E. Blauvelt has been appointed sales representative for Pennsylvania and the Atlantic Seaboard states, and Charles E. Weeks for New York and New England, of the George Lueders Company.

William H. Dinsmore has been appointed general manager of a newly created corporate public relations department of the American Can Company. The department will be responsible for corporate public relations activities of the company and the coordination of such activities of its Bradley-Sun, Canco, Dixie Cup and Marathon Divisions.



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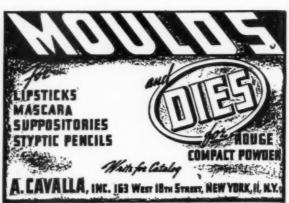
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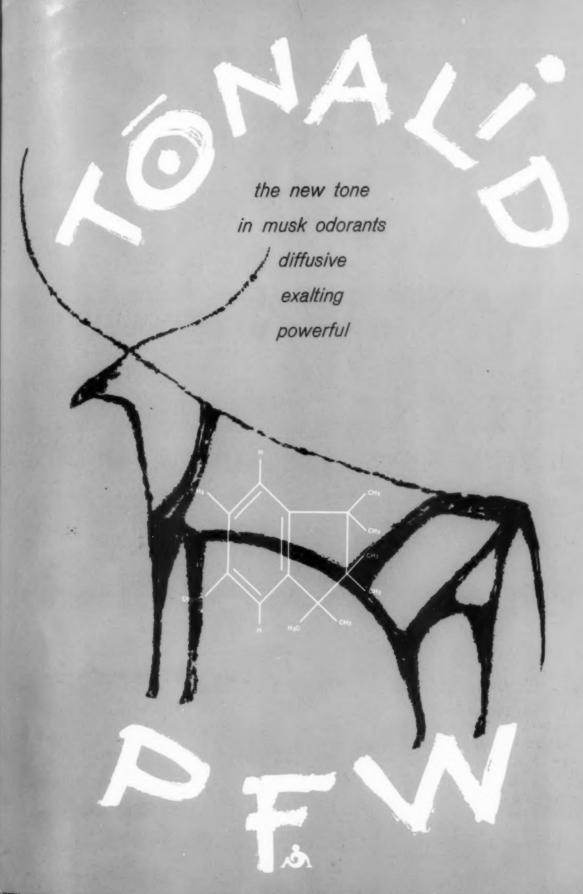
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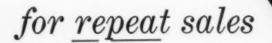
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